



M141300A

ITEM NUMBER: 141300

SERIAL NUMBER: _____

Owner's Manual

Instructions for Assembly, Testing, Operation, Servicing & Storage

12 Ton Log Splitters: Outdoor hydraulic powered machine that splits wood logs.

⚠ WARNING

READ and UNDERSTAND this manual completely before using log splitter.

All operators of this equipment must read and completely understand all safety information, operating instructions, maintenance and storage instructions. Failure to properly operate and maintain the log splitter could result in serious injury to the operator and bystanders from moving parts that can crush or cut, flying objects, burns, fire or explosion, escaping high pressure hydraulic fluid, or carbon monoxide poisoning in particular, be aware of the following hazards.

Crush and Cut Hazards

Moving parts can crush and cut hands and fingers. Keep hands clear of push plate, wedge and logs while splitting.

High Pressure Hydraulic Fluid Hazards

High fluid pressures and temperatures are developed in hydraulic log splitters. Hydraulic fluid escaping through even a pin-size hole opening can puncture skin and cause severe blood poisoning. Inspect hydraulic system regularly for possible leaks. Never check for leaks with your hand while the system is pressurized. Seek medical attention immediately if injured by escaping fluid.

Fire Hazards

- If your log splitter is intended for use near an ignitable forest, brush, or grassy covered land, the engine exhaust should be equipped with a spark arrestor. See the "Specifications" section of this manual to determine if your splitter already has a spark arrestor. If not equipped, call Wel-Bilt Product Support for ordering information.
- Keep a fire extinguisher with you that is rated for ordinary combustibles and flammable liquids.

STOP!

ADD OIL TO ENGINE BEFORE USING: Engine is shipped without oil. DO NOT start log splitter without first adding oil. See Engine Operation Section of this manual.

ADD HYDRAULIC OIL: Your log splitter was shipped without hydraulic oil. Refer to Periodic Maintenance section of this manual for instructions on filling the hydraulic reservoir

INSPECT COMPONENTS: Closely inspect to make sure no components are missing or damaged. See Initial Unpacking & Set-up for instructions and for whom to contact to report missing or damaged parts.

Any Questions, Comments, Problems or Parts Orders
Call Wel-Bilt Product Support 1-877-234-6869

Hazard Signal Word Definitions

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	DANGER (red) indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	WARNING (orange) indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	CAUTION (yellow) indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	CAUTION (yellow) used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

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About Your Log Splitter

Thank you for purchasing your Wel-Bilt log splitter!

About Your Log Splitter:

This log splitter is a machine designed to split wood logs using a hydraulically powered moving push plate. The log splitter's gasoline engine is used to pressurize the hydraulic system.

This log splitter is designed to split logs up to 18.5" long and 12" diameter.

This log splitter is designed to split logs *lengthwise with the grain* only.

Your splitter can be used in the horizontal splitting position:

- When the splitter is in the horizontal splitting position, a log is placed on the horizontal beam and the push plate moves horizontally to push the log into the wedge to split it.

The technical specifications for your log splitter are provided in the Specifications section of this manual.

WARNING

This log splitter uses a high-pressure hydraulic system to generate a very strong splitting force.

Read the manual completely before using the machine to understand how to safely operate and maintain it.

Follow all safety precautions presented throughout this manual. A summary of important safety information can be found at the end of this manual.

Contact Wel-Bilt Product Support at 1-877-234-6869 for any questions about the appropriate use of this log splitter and/or optional accessories.

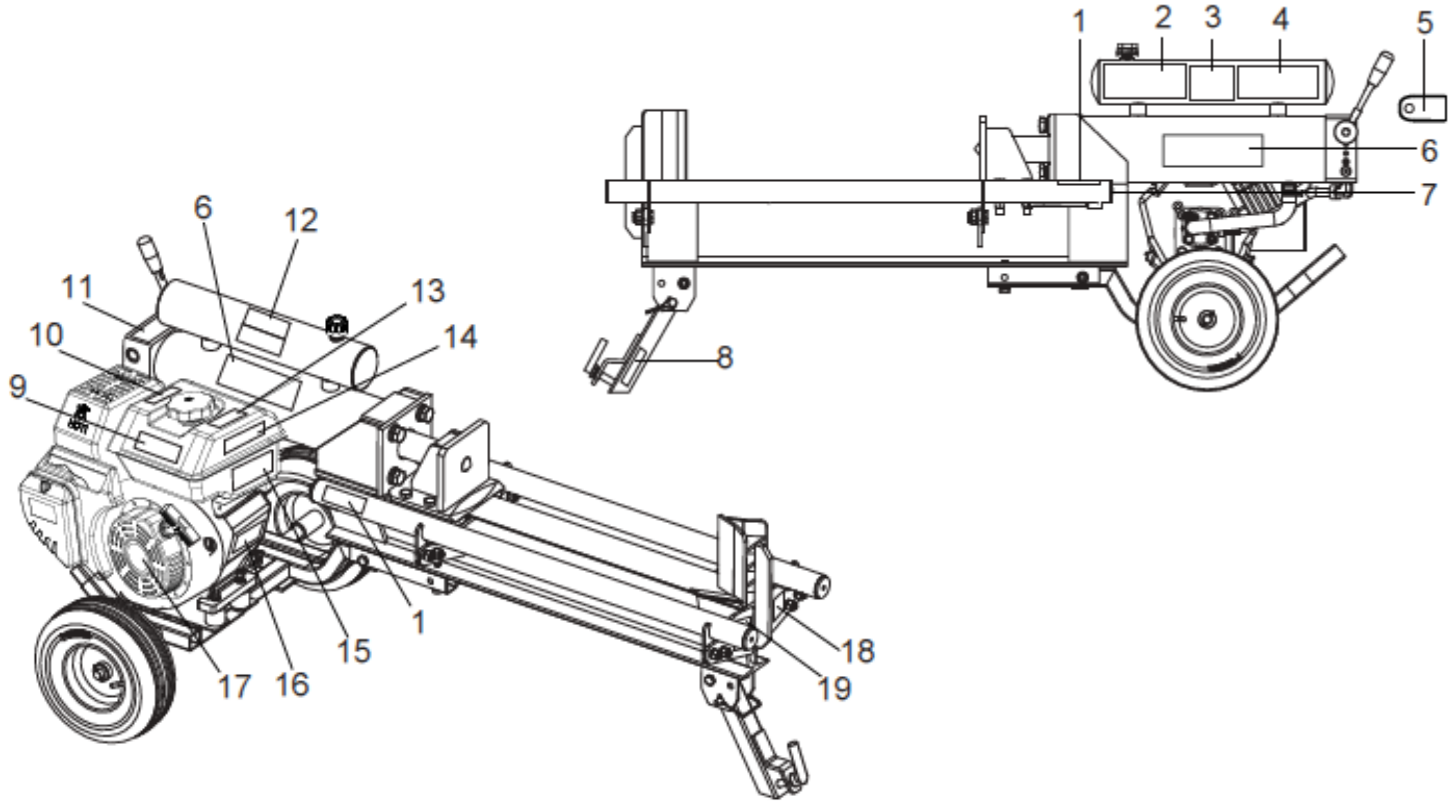
Warranty Registration:

Please fill out the warranty registration section towards the back of the manual for any future product literature or replacement parts you may need.

Attention: All Rental Companies and Private Owners who loan this equipment to others!

All persons to whom you rent/loan the log splitter must have access to and read this manual. Keep this owner's manual with the splitter at all times and advise all persons who will operate the machine to read it. You must provide instruction on how to safely operate the splitter and remain available to answer any questions a renter/borrower might have.

Safety Label Locations



Reference #	Part #	Description	Qty
1	787456	Danger Projectile Hazard Decal	2
2		Warning Fluid Hazard and Blade Hazard Decal	1
3		Warning Operating Instructions Decal	1
4		Operating Instructions Decal	1
5		Caution Add Hydraulic Oil Decal	1
6		Wel-Bilt Logo Cylinder Decal (Large)	2
7		Never Disassemble or Repair Image Decal	2
8		Warning Towing Hazard Decal	1
9		Wel-Bilt Logo Tank Decal (Small)	1
10		Warning Burn Hazard Decal	1
11		Warning Flying Debris and Split Control Lever Operation	1
12		Warning Fire Hazard and Poisonous Gas Decal	1
13		Warning Fire and Explosion Hazard Decal	1
14		Caution Engine Oil Level Decal	1
15		Wel-Bilt Serial Number Decal	1
16		Wel-Bilt Emission Control Information Decal	1
17		Wel-Bilt Recoil Decal	1
18		Towing Log Splitter Decal	1
19		Moving Log Splitter Decal	1

Always make sure safety labels are in good condition. If a safety label is missing or not legible, order new labels or unsafe operation could result.

Safety Label Locations

①

⚠ DANGER



PROJECTILE HAZARD

- **NEVER** disassemble the spring tubes.
- Internal spring is powerful, and can cause bodily harm if ejected.



⑦



②

⚠ WARNING



ESCAPING HIGH PRESSURE HYDRAULIC FLUID HAZARD

High fluid pressures and temperatures are developed in the hydraulic system. Hydraulic fluid escaping through even a pin-size hole opening can puncture skin and cause blood poisoning.

- **INSPECT** hydraulic system regularly for leaks
- **NEVER** check for leaks with your hand while system is pressurized.
- **SEEK** medical attention immediately if injured by escaping fluid.



BLADE HAZARD

Blade can cut through skin and break bones.

- **KEEP** hand away from blade.
- **SEE** medical attention immediately if injured by blade.

③

⚠ WARNING



OPERATING INSTRUCTIONS

Moving parts can crush and cut. Pieces can fly out while splitting. Follow safety rules for operating the log splitter or serious injury could result.

- **READ** the Owner's Manual completely before operating.
- Only one person should operate the log splitter. If an assistant is helping to load logs, the operator should not actuate controls until the assistant is at least 10 ft away.
- Stay in the designated **OPERATOR POSITION** while actuating the controls.
- Split wood in direction of the grain only.
- Hold bark side of logs when loading.
- Keep hands away from wedge, end plate/ram, and partly split logs.
- Never leave log splitter unattended during operation.
- Stay off slopes and slippery surfaces.

See additional safety rules in the Owner's Manual.







④

OPERATING INSTRUCTIONS

GENERAL

- Read the Owner's Manual completely before operating.
- Stay in the **OPERATOR POSITION** while actuating controls.
- Never actuate controls until the bystanders are 10ft away from logsplitter.
- Wear eye protection, hearing protection, snug fitting gloves, and safety shoes or heavy boots.

No loose or dangling apparel.

SETTING UP

- Place log splitter on dry, level ground.
- Secure splitter for unintended movement.
- Start engine.

SPLITTING LOG

- Position log on beam, against wedge.
- Move split control lever to extend ram and split log.
- Release split control lever to stop splitting and return ram.
- Remove split wood from work area.



Operator Position

Safety Label Locations

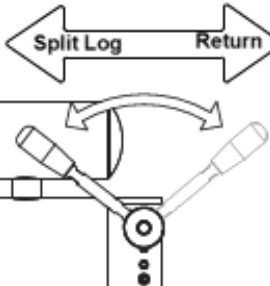
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⚠ WARNING	
TOWING HAZARD	
Serious injury may occur if this machine rolls out of control or tips. • Speed limit. Never tow this machine over 5 mph. Faster speeds may result in loss of control. • Off road towing only. This machine should not be towed on any street, highway or public road. • Added length. Be aware of the added length of the attached machine. • Rough terrain. Drive slowly and take extra caution when traveling over rough terrain. • Unattended. Turn off the towing vehicle before leaving the machine unattended. • Under the influence. Never tow or operate this machine while under the influence of alcohol, drugs, or medication.	

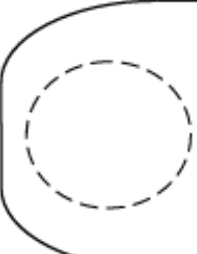
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⚠ WARNING	
	Burn hazard Do not touch hot muffler.

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⚠ WARNING	
	
FLYING DEBRIS	
ALWAYS wear eye protection. KEEP bystanders 10ft while in use. Pieces of log can fly out while splitting.	
SPLIT CONTROL LEVER OPERATION	
Split Log Return 	

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⚠ CAUTION	
	The Log Splitter is shipped without hydraulic oil, you need to add oil before operating. 1. Add 1 Gallon (4L) of hydraulic oil or until its 2/3rds from the top of the tank. 2. Start engine and move the control valve handle forward to move the push plate. Release the handle to return the push plate. Repeat the process 3 times. 3. Turn off the engine and recheck the hydraulic oil level. 4. Add hydraulic oil until its 2/3rds from the top of the tank. 5. The oil level should be in the middle of dipstick. Notice: Before operating, be sure the dipstick was full from new oil added. Tighten the dipstick when working, loading or clearing the unit.

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⚠ WARNING	
Fire / Explosion Hazard	
	Gasoline is highly flammable and explosive. - NEVER fuel a running or hot engine. - KEEP sources of heat, sparks, and flame away during refueling. - ALWAYS turn engine off and let cool for at least two minutes before refueling. - CLEAN up fuel spills immediately. - ENSURE there are no fuel leaks before starting. - DO NOT pump fuel directly into engine at gas station.

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⚠ CAUTION	
ENGINE OIL LEVEL	
	Running with insufficient engine oil may damage the engine severely. - NEVER remove the engine oil dipstick when the engine is running. - ENSURE the engine is on level ground prior to checking the oil level. - REMOVE the oil dipstick and wipe clean. - INSERT the dipstick into the oil filler without screwing it, and check oil level. - ADD recommended engine oil up to the oil filler neck. - REINSTALL the dipstick.

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⚠ WARNING	
FIRE HAZARD	
	Hot exhaust can ignite dry brush, trees, or grass. • Equip engine with a spark arrestor if you will be using near ignitable forest, brush or grassy covered land. • Keep a fire extinguisher on hand that is rated for ordinary combustibles & flammable liquids.
POISONOUS GAS	
	This product's use gives off carbon monoxide, an odorless gas that can kill you. • ONLY use outdoors and away from air intakes. • NEVER use inside homes, garages, or sheds. EVEN IF you run a fan or open doors and windows. See product manual for more details.

Safety Label Locations

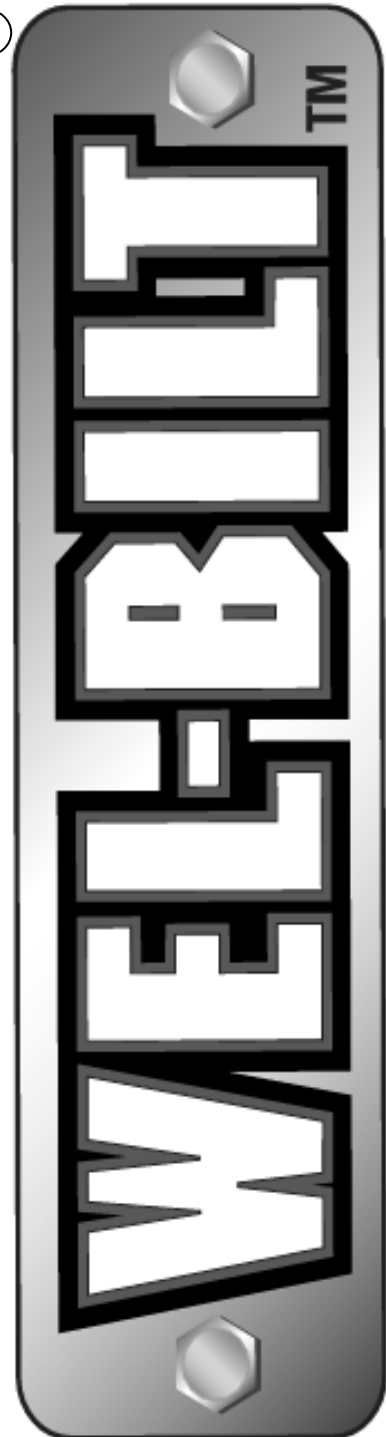
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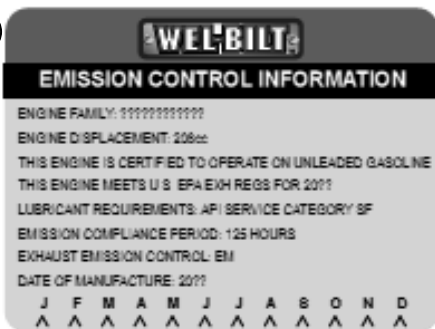
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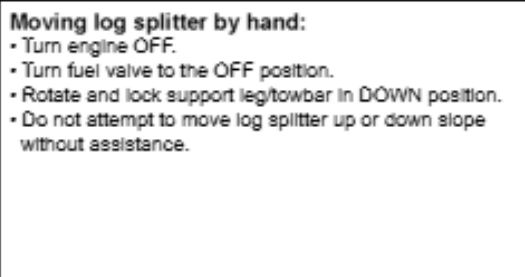
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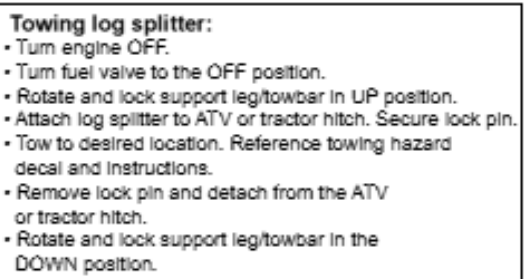
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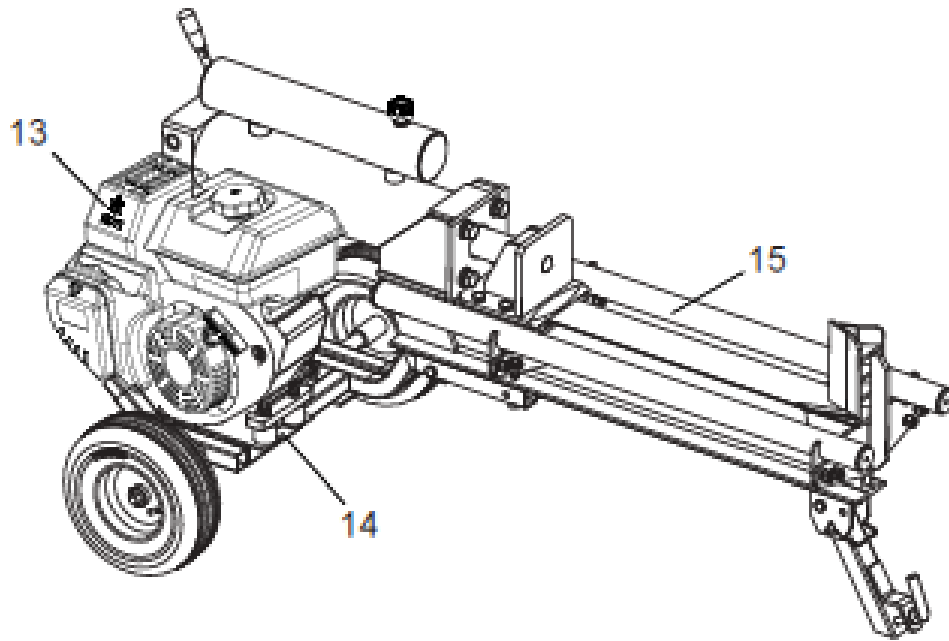
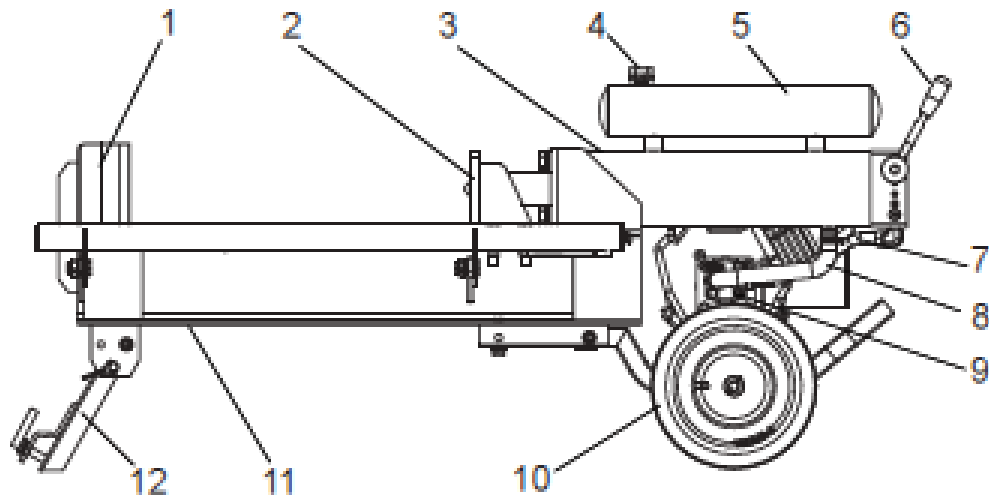
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Machine Component Identification



Ref #	Description
1	Wedge
2	Push Plate Assembly
3	Cylinder Assembly
4	Hydraulic Oil Dipstick (Breather)
5	Hydraulic Tank
6	Split Control Lever Handle
7	Pressure Hose
8	Suction Hose

Ref #	Description
9	Gear Pump
10	10 in. Flat Free Tire
11	Beam
12	Support Leg/Towing Coupler
13	208cc Wel-Bilt Gas Engine
14	Engine Mounting Plate
15	Return Spring Tube Assembly

Initial Set-Up

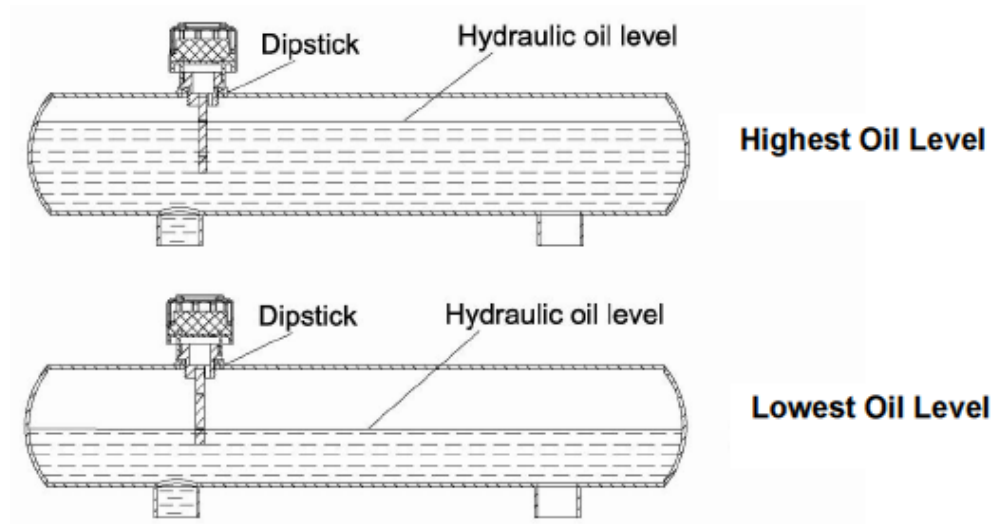
IMPORTANT!

Engine is shipped without oil. DO NOT start the engine before adding oil.

See Assembly Instructions section of this manual to assemble the log splitter before set-up.

<u>Step One:</u> Inspect Log Splitter Components	Closely inspect all log splitter components. (See Machine Components section of this manual for diagram of components.) • If you have missing components, contact Product Support at 1-877-234-6869. • If you have damaged components, contact the Freight Company that delivered the unit and file a claim.
<u>Step Two:</u> Add Oil to Engine	Add oil to the engine. Using a funnel. Add SAE 10W-30 oil up to the FULL mark on the dipstick. (See engine operation section for oil capacity and location of fill cap.)
<u>Step Three:</u> Add Hydraulic Oil to Reservoir	⚠ WARNING: High fluid pressures and temperatures are developed in hydraulic log splitters. Hydraulic fluid escaping through a pin hole sized opening can burn or puncture skin, resulting in wounds that could cause blood poisoning, infection, disability, gangrene, amputation, or death. Therefore, the following instructions should be heeded at all times when inspecting or servicing the hydraulic components of the log splitter. • NEVER check for leaks with your hand. Leaks can be located by holding a piece of cardboard or wood (at least two feet long) with your hand at one end and passing the other end over the suspected area (wear eye protection). Look for discoloration of the cardboard or wood. • NEVER adjust the pressure of the pump or valve. • If injured by escaping fluid, no matter how small the wound is, see a doctor at once. A typical injection injury may be a small wound that does not look serious. However, severe infection or reaction can result if proper medical treatment is not administered immediately by a doctor who is familiar with injection injuries. 1. Remove hydraulic oil dipstick. 2. Refer to the Specifications section for approximate hydraulic oil capacity. 3. Fill reservoir with 10 wt AW32, ASLE H-150, or ISO 32 oil. Use a funnel 4. Replace hydraulic oil dipstick. 5. Start engine and use control valve handle to extend and retract push plate 5 (five) times to remove air from the high pressure lines. 6. With push plate retracted, check oil level again. Fill if necessary. ⚠ WARNING: NEVER remove the hydraulic oil fill cap when the engine is running or hot. Hot oil can escape causing severe burns. Allow log splitter to cool completely before removing hydraulic oil fill cap.

Initial Set-Up



Note: If the log splitter will be running for long periods of time in outdoor temperatures above 70F, we recommend changing the hydraulic oil to DEXRON III.

Moving and Towing to the Job Site

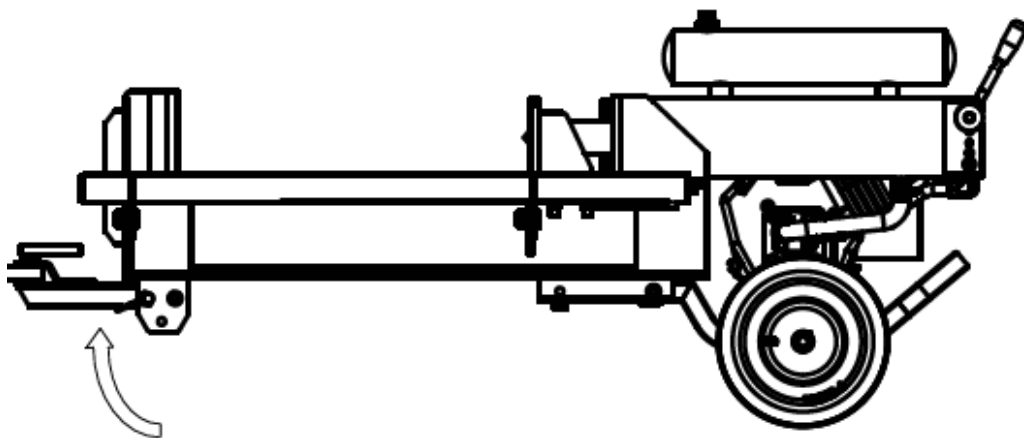


WARNING

The log splitter is heavy. It can crush and cause serious injury if it rolls out of control or tips over. Follow the instructions below for safely moving and towing the log splitter.

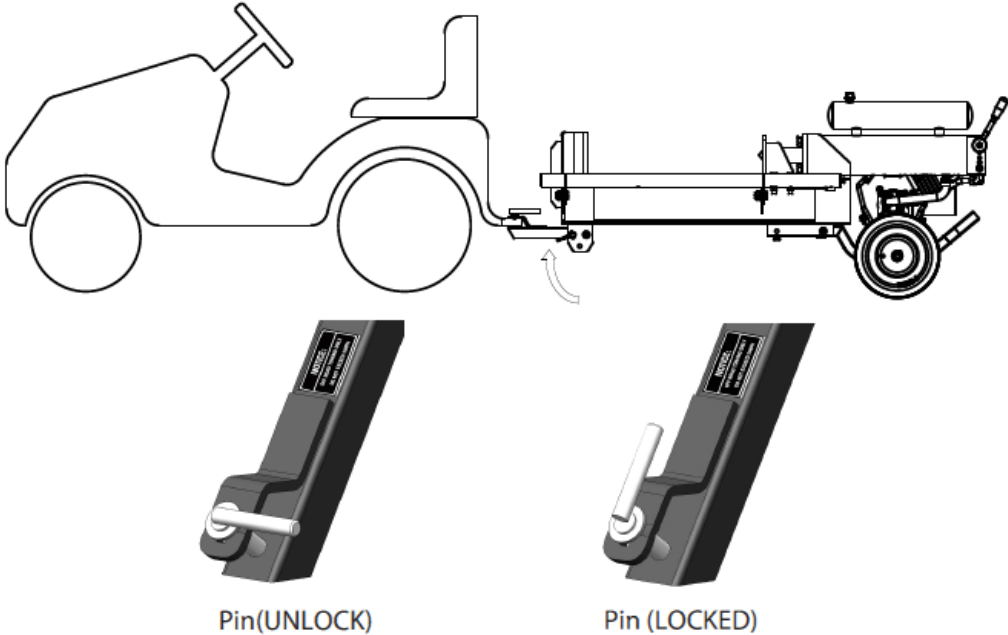
Moving the log splitter:

1. Engine off	IMPORTANT: Make sure log splitter engine is off. Never move the log splitter with its engine running.
2. Fuel valve off (if equipped)	Turn fuel valve off to prevent carburetor flooding and reduce the chance of fuel leakage. Refer to Engine section of this manual for fuel valve location.
3. Dipstick	Always tighten the dipstick before moving the Logsplitter.
4. Move log splitter to work site or tow hitch	Move log splitter by hand either directly to chosen work site or to vehicle hitch for towing. (See “Before Each Use” section on selecting a work site) <u>Important Safety Instructions:</u> • Hills. Do not move the log splitter up or down hills by hand—use a towing vehicle. • No riding. Never allow anyone to sit or ride on the log splitter. • No cargo. Never transport cargo or wood on the log splitter.



Moving and Towing to the Job Site

Towing:

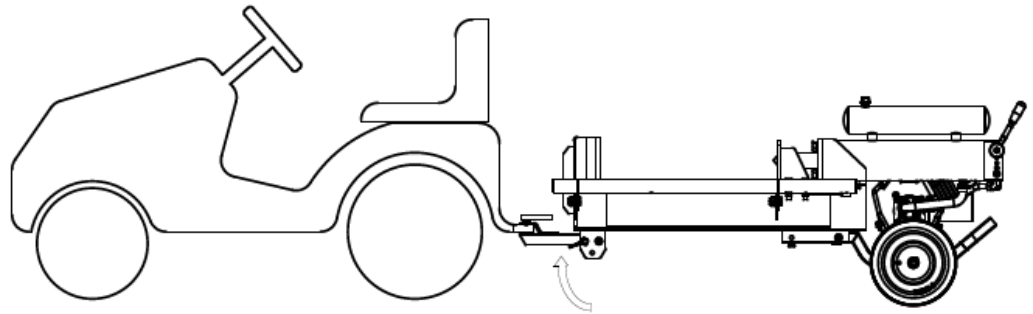
1. Read instructions	Review towing safety instructions in your vehicle manual.
2. Check tires	Make sure tires are in good condition.
3. Attach to hitch	Attach log splitter to vehicle hitch 1. Rotate the support leg upwards. 2. Attach the support leg to the vehicle hitch. 3. Secure the support leg to the vehicle hitch with the lock pin. See below for proper (LOCKED) position.  Pin (UNLOCK) Pin (LOCKED)
4. Tow to desired location	Tow log splitter carefully to desired work site. (See Before Each Use section on selecting an appropriate work site) <u>Important safety instructions:</u> • Towing. This machine should not be towed on any street, highway or public road. • Added length. Be aware of the added length of the splitter. • Backing up. It is recommended to use a spotter outside the vehicle. • Speed limit. Never tow this log splitter over 5 mph. Faster speeds may result in loss of control or damage to the splitter. • Rough terrain. Drive slowly and take extra caution when traveling over rough terrain. . • Unattended. Turn off the towing vehicle before leaving the splitter unattended. • Under the influence. Never tow or operate this splitter while under the influence of alcohol, drugs, or medication. • Operation. Never operate log splitter while it is attached to the vehicle

Moving and Towing to the Job Site

5. Disconnect from hitch

Disconnect log splitter from vehicle hitch

1. Remove the lock pin to disconnect the support leg from the vehicle hitch. See below for proper (UNLOCK) position.
2. Remove the support leg from the vehicle hitch.
3. Rotate the support leg downwards.



Pin(UNLOCK)



Pin (LOCKED)

Before Each Use-Inspection / Maintenance

Step One: Inspect and maintain log splitter before each use

If the log splitter has been used previously, it must be inspected and maintained BEFORE EACH SUBSEQUENT USE.

WARNING

ALWAYS shut off the engine, disconnect the spark plug, and relieve system pressure before inspecting, cleaning, adjusting, or repairing the splitter. Relieve system pressure by moving Split Control Lever back and forth several times.

IMPORTANT:

If a part needs replacement, only use parts that meet the manufacturer's specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the log splitter.

1. Engine off / relieve pressure	Perform all inspections/repairs with the engine off and hydraulic system pressure relieved. 1. Make sure engine is off and cool. 2. Disconnect the spark plug 3. Relieve all hydraulic system pressure by moving the Split Control Lever back and forth several times.
2. Remove debris	Remove debris from engine, muffler, and moving parts. 1. <u>Engine debris.</u> Debris on a hot engine can be a fire hazard. Clean debris and chaff from engine cylinder head, cylinder head fins, blower housing rotating screen, and muffler areas. Avoid contact with hot muffler. 2. <u>Other debris.</u> Debris on moving parts can cause excess wear. Clear debris from the slide beam, wedge, and push plate.
3. Fuel tank / lines	Check fuel tank and fuel lines for leaks. Any fuel leak is a fire hazard. Fix any fuel leaks before starting engine.
4. Mechanical parts	Check to be sure that all nuts and bolts are tight to make sure the log splitter is in safe working condition. Lubricate the beam area with engine oil before and after each use where push plate slides. DO NOT use grease to lubricate. Make sure to lubricate both front and back of the beam face.  WARNING: NEVER disassemble the spring tubes. The internal springs are powerful and can cause bodily harm if ejected.

Before Each Use-Inspection / Maintenance

5. Hydraulic system	Check the hydraulic system carefully: 1. Visually inspect all hoses, tubing, clamps/fittings, pump, and cylinder for cracks, fraying, kinks, or other damage. 2. Check all components for oily residue, which may indicate a leak. DO NOT operate the log splitter if there is any indication of damage or oily residue. Small leaks in hydraulic lines can cause severe injuries and can also be an indication of catastrophic failure in the near future. The life of hydraulic hoses may be from a few months to a few years, depending on use and storage patterns.  WARNING: High fluid pressures and temperatures are developed in hydraulic log splitters. Hydraulic fluid escaping through a pin hole sized opening can burn or puncture skin, resulting in wounds that could cause blood poisoning, infection, disability, gangrene, amputation, or death. Therefore, the following instructions should be heeded at all times when inspecting or servicing the hydraulic components of the log splitter: • Stop the engine, disconnect the spark plug, and move all control valve handles back and forth to relieve pressure before changing or adjusting hydraulic system components such as hoses, tubing, fittings or other components. • NEVER check for leaks with your hand. Leaks can be located by holding a piece of cardboard or wood (at least two feet long) with your hand at one end and passing the other end over the suspected area (wear eye protection). Look for discoloration of the cardboard or wood. • NEVER adjust the pressure setting of the pump or valve. • If injured by escaping fluid, no matter how small the wound is, see a doctor at once. A typical injection injury may be a small puncture wound that does not look serious. However, severe infection or reaction can result if proper medical treatment is not administered immediately by a doctor who is familiar with injection injuries.
6. Hydraulic oil level	Check the hydraulic oil level using the dipstick. Fill as needed.  WARNING: NEVER remove the hydraulic oil dipstick when the log splitter is running or hot. Hot oil can escape causing severe burns. Allow log splitter to cool completely before removing hydraulic oil dipstick.
7. Engine	Inspect and perform engine maintenance as directed in the engine operation section of this manual.
8. Spark arrestor muffler	If the engine is equipped with a spark arrestor muffler, clean and inspect it regularly (follow spark arrestor manufacturer's service instructions). Replace if damaged.
9. Tires	Make sure tires are in good condition if you will be towing the splitter.
10. Shields / guards	Replace all guards and shields after servicing the log splitter.

Before Each Use - Fueling

Step Two: Fueling

WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel. Use extreme care when handling gasoline.

1. Engine off / cool	The engine must be off and allowed to cool at least two minutes before adding fuel.  WARNING: A running engine is hot enough to ignite fuel. Never add fuel or remove gas cap if engine is running or still hot.
2. Outdoor location	Fill fuel tank outdoors – never indoors.  WARNING: Gasoline vapors can ignite if they collect inside an enclosure. Explosion can result.
3. Remove gas cap	Remove engine gas cap.
4. Add gasoline	Add gasoline through fill opening from a UL-approved container. <u>Important Safety Instructions:</u> • Use approved container. NEVER pump fuel directly into engine at gas station. Static charge can build and ignite fuel. Use a UL approved fuel container to transfer gas to the engine. • Don't overfill. DO NOT overfill the gas tank. Allow at least 1/2" of empty space below the fill neck to allow for fuel expansion • Heat / flames / sparks. Stay away from sources of heat, flame, or sparks while adding fuel.
5. Spills / splashes	Clean up fuel spills /splashes immediately. 1. Move the log splitter away from spilled fuel on the ground. 2. Wipe fuel off engine and wait 5 minutes for excess fuel to evaporate before starting engine. 3. Gas soaked rags are flammable and should be disposed of properly. 4. If gasoline is spilled on your skin or clothes, change clothes and wash skin immediately.
6. Replace gas cap	Replace gas cap securely before starting engine.
7. Gasoline storage	Store extra gasoline in a cool, dry place in a UL approved, tightly sealed container.

Before Each Use – Work Site Selection and Set-up

Step Three: Work site selection and log splitter set-up

WARNING

It is important to select an appropriate work site and properly set up the log splitter in order to minimize the risk of slips and falls, equipment rolling or tipping over, carbon monoxide poisoning, and accidental fires.

1. Select location	Select an appropriate location for operating the log splitter. <u>Requirements:</u> 1. Dry-level surface with good footing. Stay clear of areas with mud, ice, tall grass, weeds, brush, or snow. 2. Outdoors, away from air intakes.  WARNING: The running engine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it. • ONLY run log splitter <u>OUTDOORS</u> and away from air intakes. NEVER run log splitter inside homes, garages, sheds, or other buildings or semi-enclosed spaces. These spaces can trap poisonous gases, EVEN if you run a fan or open windows. • If you start to feel sick, dizzy, or weak while using the log splitter, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.
2. Fire precautions	Take the following precautions against fire: 1. <u>IMPORTANT:</u> If your splitter will be used near any unimproved forest, brush, or grassy covered land, <i>then engine must be equipped with a <u>spark arrestor</u>.</i> (See the "Specifications" section of this manual to determine if your splitter already has a spark arrestor. Contact Wel-Bilt Product Support at 1-877-234-6869 for information about obtaining a spark arrestor for your log splitter if it is unequipped.) 2. Make sure you comply with applicable local, state and federal codes. 3. Keep a fire extinguisher available (classified for both ordinary combustibles & flammable liquids) as a precautionary measure when operating the log splitter in dry areas.
3. Position splitter 7' from any combustibles or flammable liquids	Position muffler at least 7 ft. from combustible objects during operation. Hot exhaust fumes from engine could cause fire. Also, hydraulic oil leaking or spraying on hot engine can ignite.
4. Block wheels	Block the wheels to prevent unintended movement of the log splitter.
5. Lubricate beam	Lubricate the beam area before and after each use where push plate slides. DO NOT use grease to lubricate. Make sure to lubricate both front and back of the beam face.

Splitting Operation

WARNING

Before starting this log splitter, review the following instructions and safety information for safe operation of the log splitter.

Failure to follow these rules may result in serious injury to the operator or bystanders from moving parts that crush, cut, or entangle from flying objects, burns, fire, falling or tripping, or from carbon monoxide poisoning.

General safety information:

- **Read manual.** Do not allow anyone to operate the log splitter who has not read the Owner's Manual or has not been instructed on the safe use of the splitter. The log splitter owner should instruct all operators in safe log splitter operation.
- **Age restrictions.** Never allow anyone under 16 years old to operate the log splitter. Anyone 16 years and older must be trained and supervised by a trained adult.
- **Intended use.** Log splitters should only be used for splitting wood logs, lengthwise with the grain. Do not use for other purposes as unforeseen hazards may result.
- **Modifications.** Never modify or alter the log splitter in any way. Modifications can create serious safety hazards and will void the warranty:
- **Attachments.** Never add attachments to the splitter, except for authorized accessories supplied by the manufacturer with instructions for safe installation and use.
- **Engine speed.** The maximum engine speed is preset at a safe limit. Never attempt to modify the engine speed setting to run at a higher speed.
- **Fuel/exhaust system.** NEVER modify or add to the exhaust system, fuel tanks, or fuel lines. Fire can result.
- **Remote control.** NEVER attach a rope, cable, or other remote device to the splitting control.
- **Splitting wedge.** NEVER attempt to change the height of the splitting wedge.
- **Pressure setting.** NEVER increase the pressure setting of the pump or control valve.
- **Safety equipment / controls.** Always operate the log splitter with all safety equipment in place and in good working order, and all controls properly adjusted for safe operation.
- **Know how to stop.** Be thoroughly familiar with all controls and with the proper use of the equipment. Know how to stop the log splitter and relieve system pressures quickly if needed.
- **Operating speed.** Always operate the log splitter at the manufacturer's recommended speed. The maximum speed of the engine pump and push plate are preset within safe limits.
- **Daylight only.** Only use the log splitter in daylight so you can see what you are doing.
- **Smoking / sparks.** Never smoke while operating the log splitter, and never operate near sources of sparks or flames.
- **Under the influence.** Never operate, or let anyone else operate, the log splitter while under the influence of alcohol, drugs, or medication.
- **Unattended.** Never leave the machine unattended while the engine is running.
- **Refueling.** Never refuel the engine until it has cooled at least two minutes.
- **Adjusting / repairing.** Always make sure the engine is off before cleaning, repairing or adjusting the splitter, except as recommended by the manufacturer. In addition, disconnect the spark plug and move all control handles back and forth to relieve system pressure *before changing or adjusting hydraulic system components* such as hoses, tubing, fittings or other components.
- **Replace labels.** Always make sure safety labels are in place and in good condition. If a safety label is missing or not legible, order new labels because unsafe operation can result. Call 1-877-234-6869 to order new safety labels.

Splitting Operation

1. Put on protective clothing / gear	Wear the following protective clothing and safety gear: 1) Eye protection. Always wear safety glasses or goggles when operating the machine. Pieces of log may fly out and serious eye injury can occur. 2) Boots. Falling logs can crush feet. Always wear safety shoes or heavy boots when operating or helping to load logs. 3) Gloves. Wear snug fitting gloves without drawstrings or loose cuffs. 4) Hearing protection. The use of earplugs or other hearing protection device is recommended. 5) No Loose / dangling. Loose or dangling apparel can become entangled in moving parts. Never wear jewelry or loose-fitting clothing.
2. Lock & block	Block the wheels to prevent unintended movement of the log splitter. Check that: 1) The support leg is in the DOWN position. 2) The wheels are blocked.
3. Set to splitting position	Set log splitter into splitting position. Place the log splitter on level, dry ground. <u>Note:</u> Musculoskeletal injury can result from lifting logs onto the log splitter if proper lifting techniques are not used or the logs are too heavy for a person's size, weight, or strength. In some cases, logs as small as 8" in diameter and 14" in length may be heavier than what some persons should be repeatedly lifting onto the splitter. Employers are advised to consider NIOSH lifting guidelines when assigning employees to log splitting tasks for an extended period of time.
4. Start engine	Start the engine. See the engine section of this manual for engine starting instructions. <u>NOTE:</u> a) Make sure the hydraulic oil is above 10°F before starting the engine. Cold hydraulic oil can damage the hydraulic pump. b) If outdoor air temperature is below 32°F, allow log splitter to warm up by extending and returning the push plate several times before splitting wood.  WARNING: Burns. To avoid burns, stay clear of hot muffler if you are starting a warm engine. Carbon monoxide. The running engine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it. If you start to feel sick, dizzy, or weak while using the log splitter, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning. Other exhaust dangers. Engine exhaust, some of its constituents and certain vehicle components contain or emit chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Avoid inhalation of exhaust.

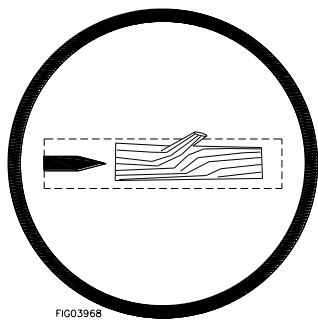
Splitting Operation

5. Load log

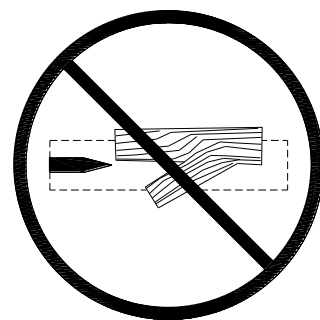
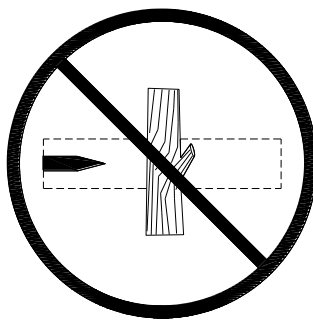
Load log onto beam with a cut end against the wedge – positioned for a lengthwise cut.

Notes:

- The log splitter is designed only for cutting lengthwise with the grain, NOT for cutting across the grain.
- This log splitter is designed for cutting logs only up to 18.5" long lengthwise with the grain and 12" diameter. Large diameter logs could get stuck on the wedge and longer logs will not fit on the beam.



Correct Log Orientation



Incorrect Log Orientation

⚠ WARNING: ALWAYS keep hands and feet away from the push plate, wedge, and partially split logs while loading, operating and unloading the log splitter.

Important safety instructions:

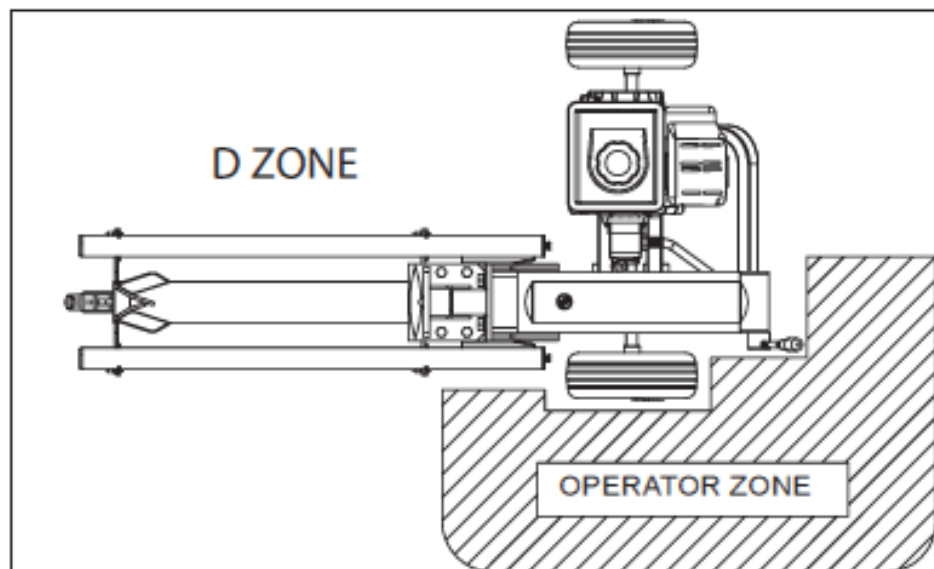
- **Hold bark side.** Hold the bark side of logs when loading or positioning, never the ends. Never place your hands or any part of your body between a log and any part of the log splitter.
- **Push plate moving.** NEVER load or unload logs while the push plate is moving.
- **Straddling / reaching across.** Never straddle, reach across, or step over the beam while the engine is running and the log splitter is in the horizontal position. You could trip, actuate the controls, and get seriously injured.
- **Unsplit log pile.** Do not pile logs to be split in a place that will make you reach across the log splitter in order to load them.
- **Square log ends.** Logs that are not cut square can slide out while splitting and become a safety hazard or cause excessive force to log splitter components. Use a chainsaw to cut logs square on each end before attempting to split them.
- **Single log.** Never attempt to split more than one log at a time. Pieces of log can unexpectedly be thrown from the machine causing serious injury.
- **Split along grain.** Do not use the log splitter to split logs across the grain. Doing so will damage the log splitter and could also cause pieces of log to be thrown, injuring the operator or bystanders.
- **Forked logs.** Splitting forked logs can cause damage the log splitter. Trim the forked log with a chain saw prior to splitting the log.

Splitting Operation

6. Operator Position

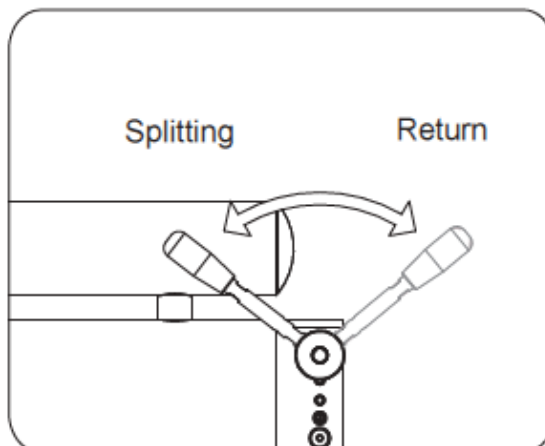
Important safety instructions:

- **Operator zone.** ALWAYS operate the log splitter from the manufacturer's indicated OPERATOR ZONE. (See diagram below.) Other positions including the Danger Zone "D Zone" are unsafe because they can increase the risk of injury from crushing, cutting, flying objects, or burns.
- **Remove hands.** Remove both hands from log before activating Split Control Lever.
- **Hand activate.** Use only your hand to operate the Split Control Lever. Never use any other body part, or a rope, cable, or other remote device to actuate the control.
- **Second person.** Many accidents occur when there is more than one person involved in loading and operating the log splitter. Only one person should operate the controls. If a second person is assisting in loading logs, the operator must NEVER actuate the Split Control Lever until the assistant and all bystanders are at least 10 feet away. NEVER allow an assistant to hold the log in place while the operator actuates the Split Control Lever.



7. Extend Push Plate

Move control lever handle forward toward the wedge to extend the push plate to begin splitting the log.



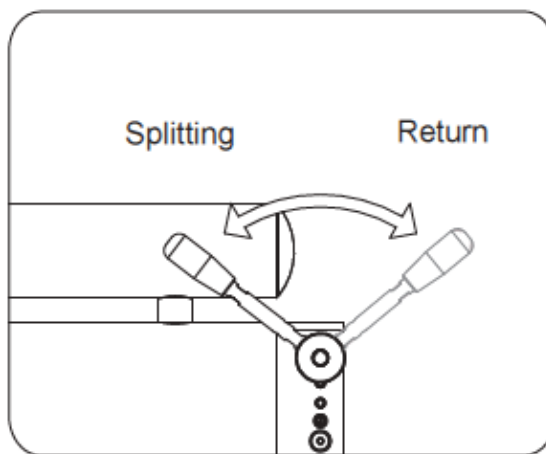
Splitting Operation

8. Return Push Plate

Release control lever handle to return the push plate to its original position.
Once the control valve handle is released the push plate will return by itself automatically.

⚠ WARNING:

Stay clear while the push plate is returning. It is still powerful enough on the return stroke to cause serious injury.



9. Important STUCK LOG procedure

If a log does not split completely and becomes stuck on the wedge, follow the instructions below to remove the log.

A log can become stuck to the wedge if the wedge becomes embedded in the log and the log doesn't split and separate. This can happen if the log is too stringy or tough to split completely. Keep hands clear of log and wedge while push plate is extending or retracting.

⚠ WARNING: NEVER attempt to remove a stuck log by:

- Modifying the splitter.
- Using the hydraulic force of the splitter.
- Adding attachments to the splitter.

1. Turn engine OFF.
2. Remove stuck log from the wedge **manually** with a pry bar or a sledgehammer.

Important: be extremely careful as log pieces may fly off at high speed toward the operator or bystanders as they separate from the wedge. Make sure bystanders are clear and wear safety goggles.

3. Do not attempt to resplit a stuck log once it has been removed from the wedge. Manually split with an axe or cut with a chainsaw.

10. Remove split wood

Remove split wood from area.

Move each log away from log splitter after it is split. Split logs left near the log splitter are a trip hazard.

11. After use

1. **Turn off engine.**
2. **Remove engine debris.**

Debris on a hot engine can be a fire hazard. After the engine is off, clean debris and chaff from engine cylinder head, cylinder head fins, blower housing rotating screen, and muffler areas.

⚠ WARNING: Avoid contact with hot muffler.

Storage

WARNING

Gasoline vapors can ignite and cause a fire. Select a well-ventilated storage away from sources of heat, flame, or sparks.

Follow the instructions below for storing your log splitter between uses.

1. Clean	Clean the log splitter of any debris.
2. Cool	Allow the machine to cool 5 minutes before storing.  WARNING: A hot engine can be a fire hazard.
3. Wipe with oily rag	Wipe the beam, push plate and wedge with an oily rag to prevent corrosion.
4. Engine operation	Refer to the engine section of the manual for proper engine storage instructions. CAUTION: Gasoline will oxidize and deteriorate in storage. Old gasoline in the engine will cause hard starting and leave gum deposits that can clog the fuel systems. Deterioration problems may occur within a few months, or even less if gasoline was not fresh when you filled the tank. <u>Short-Term Storage:</u> 1. Consider adding a fuel stabilizer to extend fuel storage life. 2. Leave the fuel valve lever in the OFF position to reduce the possibility of fuel leakage. <u>Long-Term Storage:</u> (between infrequent uses and at end of season) Drain the fuel tank and carburetor as instructed in the engine section of this manual. <u>Important Safety Instructions</u> • Always drain fuel from tank in outdoor, well-ventilated area. • Stay away from sources of heat, flame, or sparks while handling fuel. • Clean up fuel spills/splashes immediately.
5. Splitter storage location	Store the log splitter in a location away from corrosive material, sources of heat, open flames, sparks or pilot lights.  WARNING: Never store log splitter inside where there is a source of heat or an open flame, spark or pilot light – such as water heaters, space heaters, furnaces, clothes dryers, or other gas appliances – EVEN IF the log splitter's gas tank is empty, residual gasoline vapors could ignite. <u>NOTE:</u> Do not store the log splitter near fertilizer or any other corrosive material.
6. Gasoline storage	Store gasoline in a cool, dry place in an UL approved tightly sealed container.  WARNING: Gasoline vapors can ignite if they collect inside an enclosure and explosion can result.

Periodic Maintenance

In addition to the maintenance performed with each use, periodic maintenance should also be performed according to the following schedule.

WARNING

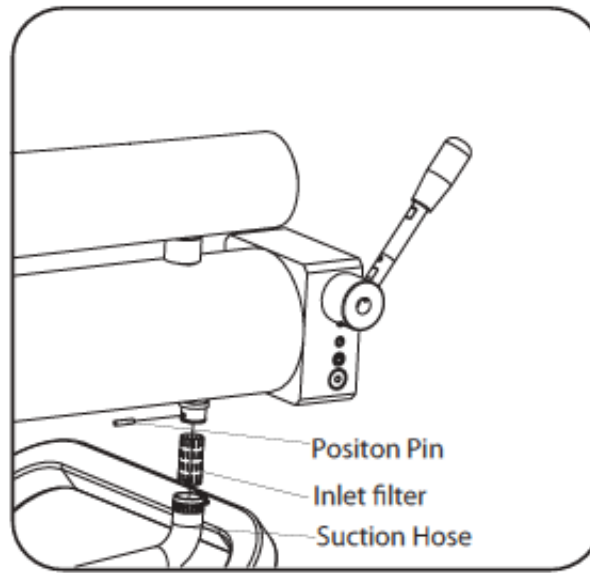
ALWAYS shut off the engine, disconnect the spark plug, and relieve system pressure before cleaning, adjusting, or repairing the splitter. Relieve system pressure by moving Split Control Lever back and forth several times.

IMPORTANT:

If a part needs replacement only use parts that meet the manufacturer's specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the log splitter.

1. Engine maintenance	Perform engine maintenance as specified in engine section of this manual.
2. Hydraulic Oil Change	Change Hydraulic Oil Annually or Every 100 Hours.  WARNING: High fluid pressures and temperatures are developed in hydraulic log splitters. Hydraulic fluid escaping through a pin hole sized opening can burn or puncture skin, resulting in wounds that could cause blood poisoning, infection, disability, gangrene, amputation, or death. Therefore, the following instructions should be heeded at all times when inspecting or servicing the hydraulic components of the log splitter. • NEVER check for leaks with your hand. Leaks can be located by holding a piece of cardboard or wood (at least two feet long) with your hand at one end and passing the other end over the suspected area (wear eye protection). Look for discoloration of the cardboard or wood. • NEVER adjust the pressure of the pump or valve. • If injured by escaping fluid, no matter how small the wound is, see a doctor at once. A typical injection injury may be a small wound that does not look serious. However, severe infection or reaction can result if proper medical treatment is not administered immediately by a doctor who is familiar with injection injuries. 1. Use 10wt AW32, ASLE H-150, or ISO32 oil. 2. Relieve hydraulic system pressure by moving Control Lever back and forth several times. 3. Remove hydraulic oil dipstick.  WARNING: NEVER remove the hydraulic oil dipstick when the engine is running or hot. Hot oil can escape causing severe burns. Allow the log splitter to cool completely before removing hydraulic oil dipstick. 4. Remove the hydraulic oil from the reservoir tank at the port that connects the suction hose to the bottom of the reservoir tank. 5. Provide a suitable container to allow the fluid to drain into. 6. Disconnect the suction hose from the bottom of the reservoir tank. 7. Carefully take the inlet filter out and clean it. See below.

Periodic Maintenance



8. Reinsert the filter and refill the reservoir tank with 1 gallon (4L) of hydraulic oil. Maintain oil level with the range specified on the dipstick at all times.
9. Dispose of used oil at an oil-recycling center. Used hydraulic oil is hazardous waste.
10. Extend and retract push plate 5 (five) times to purge air from the system.
11. Check hydraulic oil level and fill if necessary.

3. Change filter

Change hydraulic inlet filter every 50 hours of operation.

4. Lubricate

1. Lubricate the beam before each use with engine oil. Lubricate the top of the beam and under the top edge so the push plate will easily move across the beam.
2. If necessary, adjust the side bolts so the push plate moves freely. There should be no excess space between the push plate and beam.

5. Hose clamps

Check before each use if the hose clamps on the suction hose (attached to the side of the pump) are tight. Check the hose clamps on the return hose at least once a season.

6. Spark arrestor muffler

If the engine is equipped with a spark arrestor muffler, clean and inspect it regularly (follow manufacturer's service instructions). Replace if damaged.

Troubleshooting

WARNING

Before troubleshooting or attempting to service, read the following safety instructions to avoid serious injury to the operator or bystanders from moving parts that can crush or cut, burns, fire or explosion, or escaping high pressure hydraulic fluid.

Important Safety Instructions:

1. **Engine off.** Always make sure the engine is off before cleaning, repairing or adjusting the splitter, except as recommended by the manufacturer.
2. **Hydraulic safety.** High fluid pressures and temperatures are developed in the hydraulic log splitters. Hydraulic fluid escaping through a pin hole sized opening can burn or puncture skin, resulting in wounds that could cause blood poisoning, infection, disability, gangrene, amputation, or death. Therefore, the following instructions should be heeded at all times when inspecting or servicing the hydraulic components of the log splitter:
 - Stop the engine, disconnect the spark plug, and move all control valve handles back and forth to relieve pressure before changing or adjusting hydraulic components such as hoses, tubing, fittings, or other components.
 - Do not remove the hydraulic oil fill cap when the engine is running. Hot oil can escape causing severe burns. Allow the log splitter to cool completely before removing the hydraulic oil fill cap.
 - Do not adjust the pressure setting to the pump or valve.
 - Do not disassemble the spring tubes. The internal springs are powerful and can cause bodily harm if ejected.
 - Do not check for leaks with your hands. Leaks can be located by holding a piece of cardboard or wood (at least 2 feet long) with your hand at one end and passing the other end suspected area (wear eye protection). Look for discoloration of the cardboard or wood.
 - If injured by escaping fluid, no matter how small the wound is, see a doctor at once. A typical injection injury may be a small puncture that does not look serious. However, severe infection or reaction can result if proper medical treatment is not administered immediately by a doctor who is familiar with injection injuries.

Problem	
Cylinder rod will not move	Solution: A,D,E,H,J
Slow cylinder shaft speed when extending or retracting	Solution: A,B,C,H,I,K
Wood will not split or splits extremely slowly	Solution: A,B,C,F,I,K
Engine bogs down during splitting	Solution: G
Engine stalls under low load condition	Solution: D,E
Cause	Solution
A- Insufficient oil to pump	Check oil level in reservoir
B- Air in oil	Check oil level in reservoir
C- Excessive pump inlet vacuum	Check pump inlet hose for blockage or kinks
D- Blocked hydraulic lines	Flush and clean the splitter hydraulic system
E- Blocked control valve	Flush and clean the splitter hydraulic system
F- Low control valve setting	Adjust control valve with a pressure gauge
G- High control valve setting	Adjust control valve with a pressure gauge
H- Damaged control valve	Return control valve for authorized repair
I- Internal control valve leak	Return control valve for authorized repair
J- Damaged cylinder piston	Return cylinder for authorized repair
K- Internally damaged cylinder	Return cylinder for authorized repair

Any Questions, Comments, Problems or Parts Orders
Call Wel-Bilt Product Support 1-877-234-6869

Specifications

Tonnage.....	12 Ton
Cycle Time.....	12 Seconds
Wedge Height.....	5.5 in.
Cylinder Bore Size.....	3.15 in.
Hydraulic Fluid Capacity...	1 Gallon (4L)
Hydraulic Fluid Type.....	10 WT AW32, ASLE H-150, or ISO32
Maximum Towing Speed...	5 MPH
Maximum Log Length.....	18.5 in.
Tire Size.....	10 in. Flat Free
Gas Engine.....	208cc Wel-Bilt
Overall Dimensions.....	59”L x 29”W x 24.5”H (150x74x62cm)
Dry Weight.....	220 lbs.

The manufacturer reserves the right to make improvements in design and/or changes in specifications at any time without incurring any obligation to install them on units previously sold.

Any Questions, Comments, Problems or Parts Orders
Call Wel-Bilt Product Support 1-877-234-6869

Assembly Instructions

Closely inspect all log splitter components.

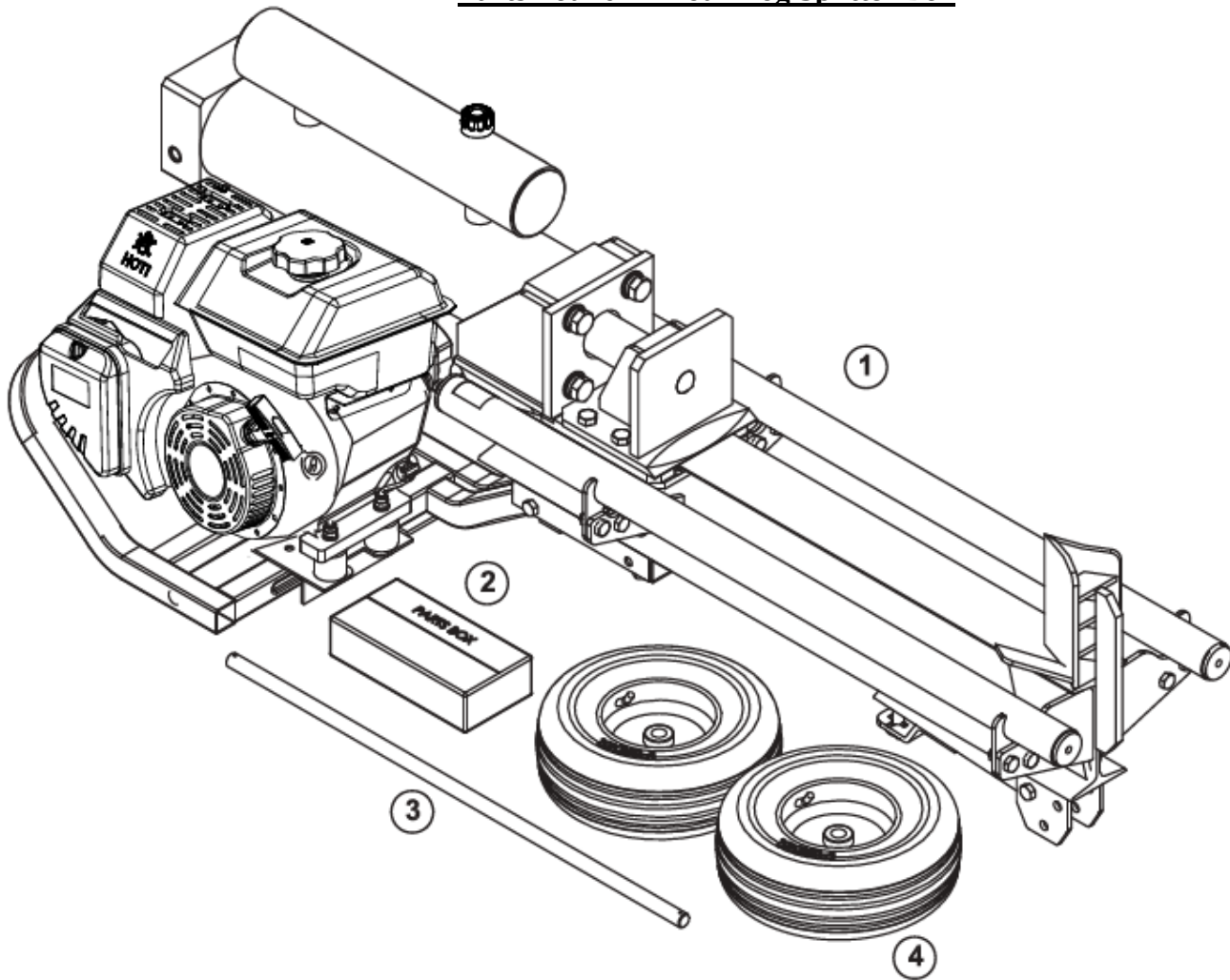
If you have missing components, contact Product Support at 1-877-234-6869.

If you have damaged components, contact the Freight Company that delivered the unit and file a claim.

CAUTION! Heavy lifting required. Some of the components in these assembly instructions are heavy and cannot be lifted by one person safely. Please plan on assembling this product when another person can be available to help out.

Tools needed: Adjustable wrenches, Torque Wrench, Soft Faced Mallet, Flat Blade Screw Driver.

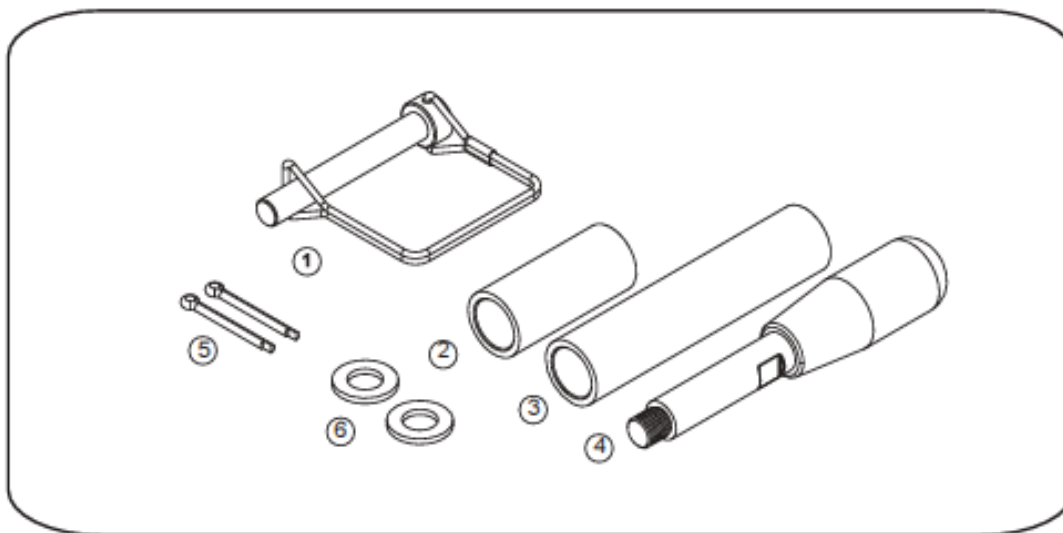
Parts Found In Your Log Splitter Box



Ref #	Description	Qty
1	Log Splitter Assembly	1
2	Hardware Box	1
3	Wheel Axle	1
4	10in. Flat Tree Tire	2

Assembly Instructions

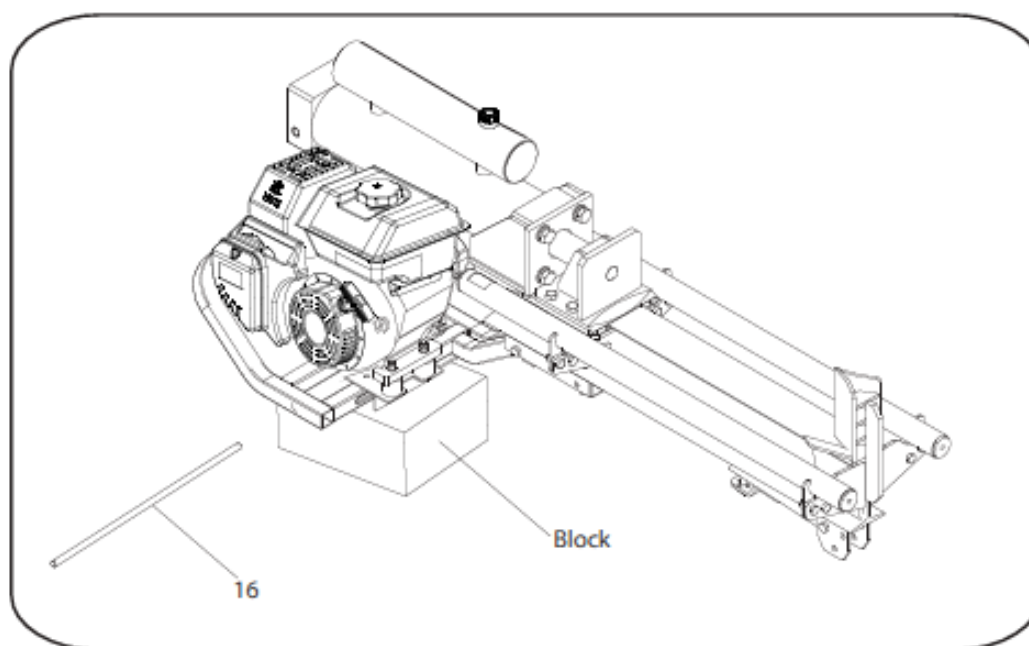
Parts Found In Your Hardware Box



Ref #	Description	Qty
1	Front Leg Pin	1
2	Short Axle Sleeve	1
3	Long Axle Sleeve	1
4	Control Valve Handle	1
5	Cotter Pin	2
6	Flat Washer	2

Step 1 – Install Wheel Axle

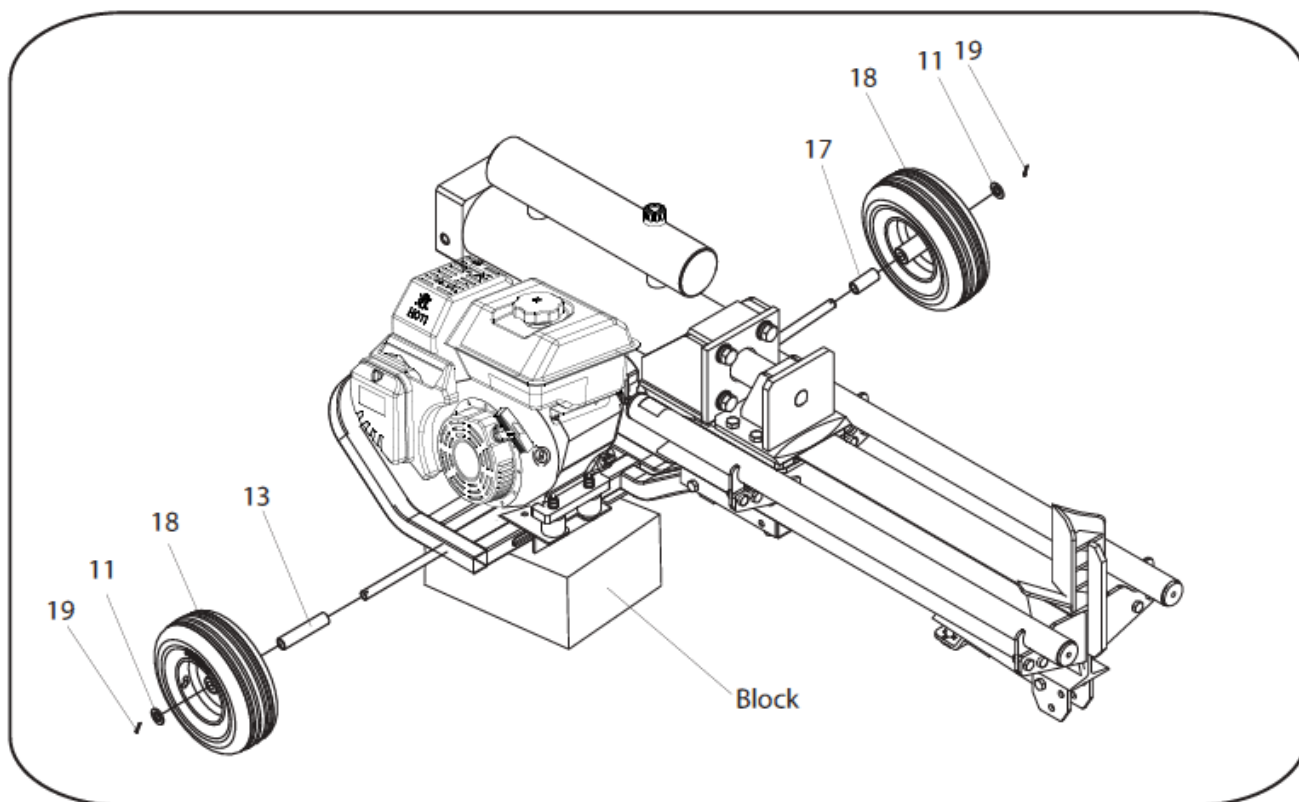
1. Take all parts out of shipping box and hardware box. Put a block under the log splitter frame and slide the wheel axle #16 through the frame hole.



Assembly Instructions

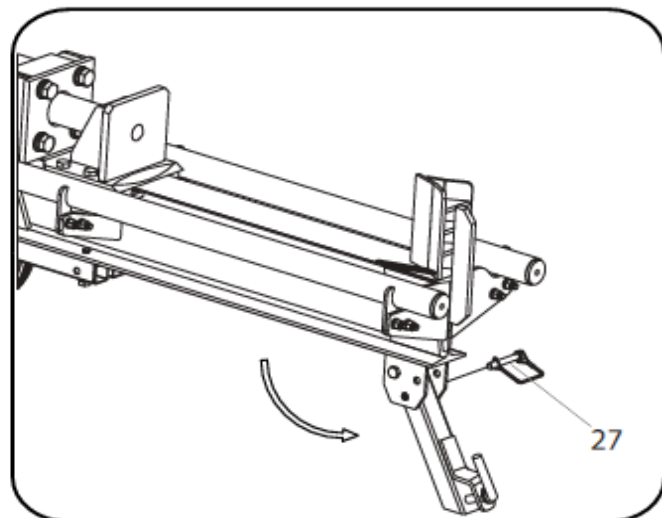
Step 2 – Wheel Assembly

1. On the left side of the axle install parts in the following order: short axle sleeve (#17), wheel (#18), flat washer (#11) and secure with the cotter pin (#19).
2. On the right side of the axle install parts in the following order: long axle sleeve (#13), wheel (#18), flat washer (#11) and secure with the cotter pin (#19).



Step 3 – Front Support Leg

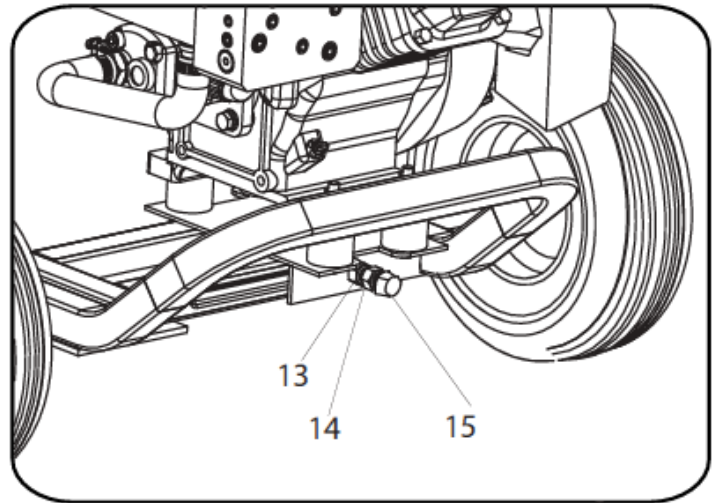
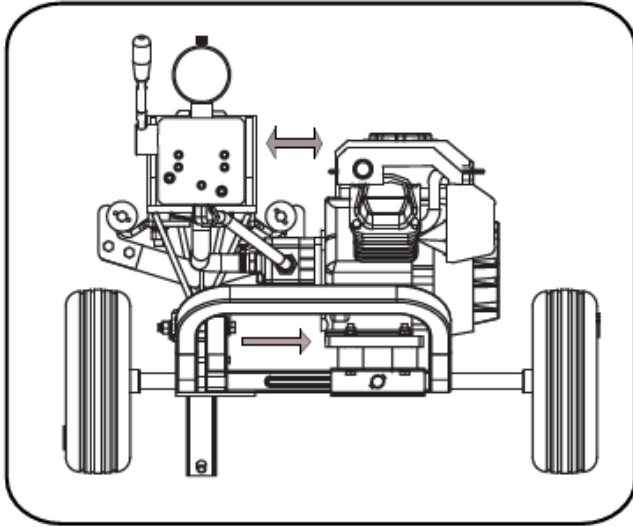
1. Rotate the front support leg up and secure with front leg pin set (#27).



Assembly Instructions

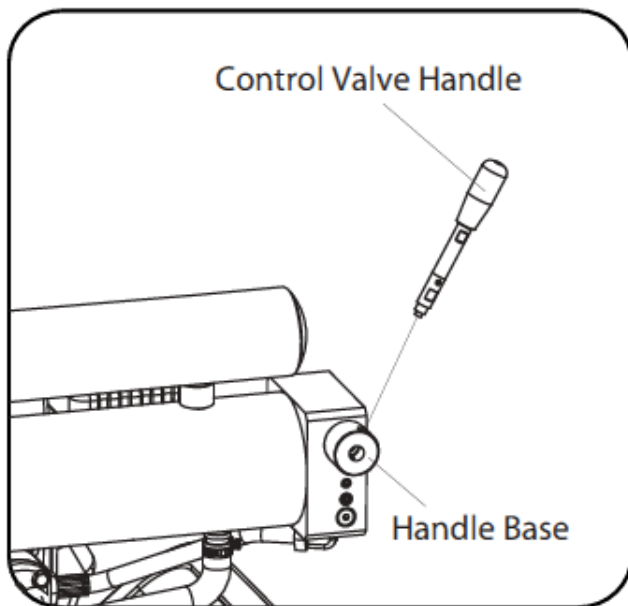
Step 4 – Reposition Engine/Pump Assembly for Operation

1. Loosen the hex bolt (#15), lock nut (#14) and lock washer (#13).
2. Slide the engine/pump assembly out away from beam and cylinder assembly.
3. Retighten the hex bolt (#15), lock nut (#14) and lock washer (#13).

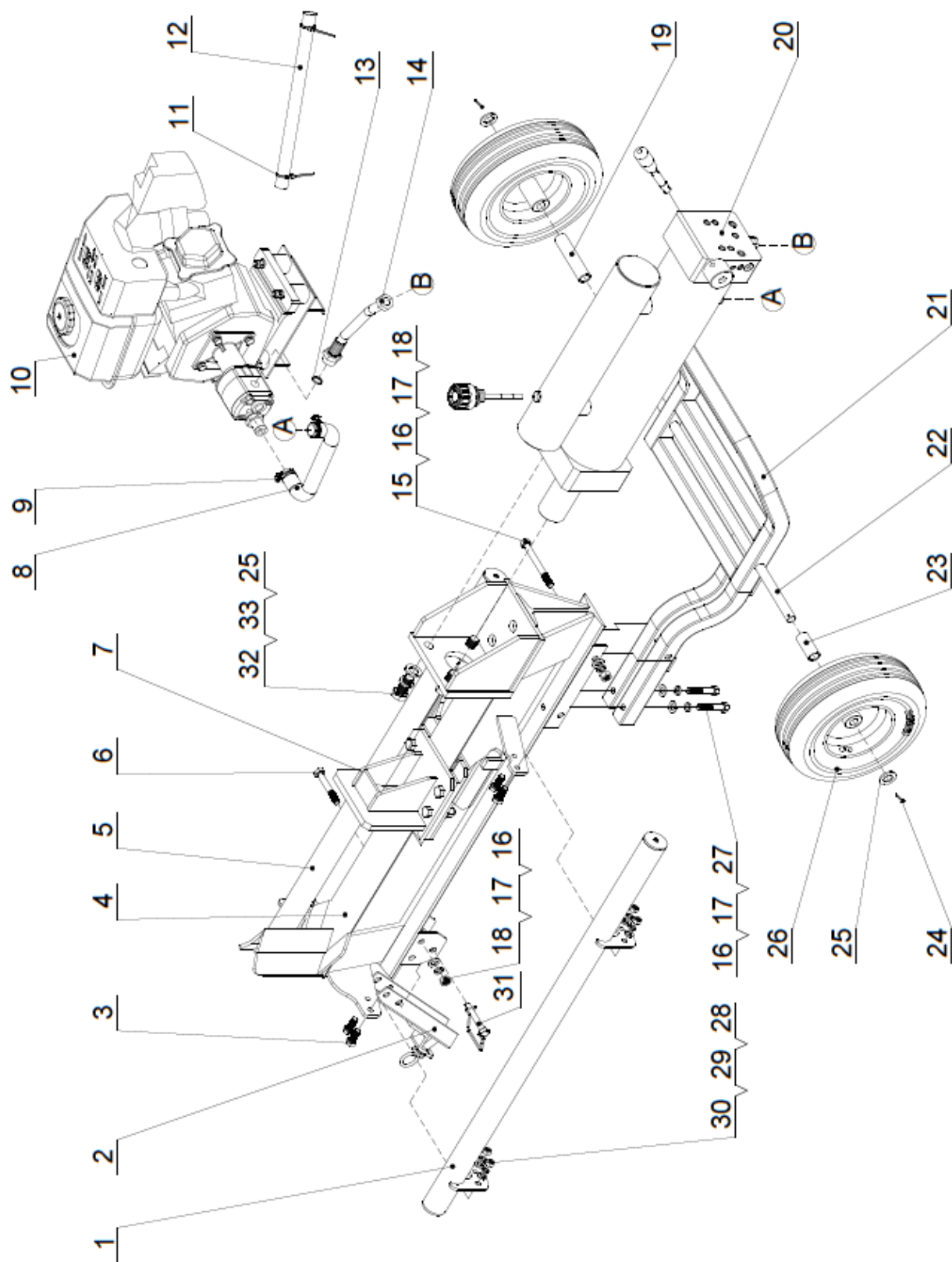


Step 5 – Control Valve Handle

1. Insert the control valve handle into the handle base and secure with a 10mm wrench.



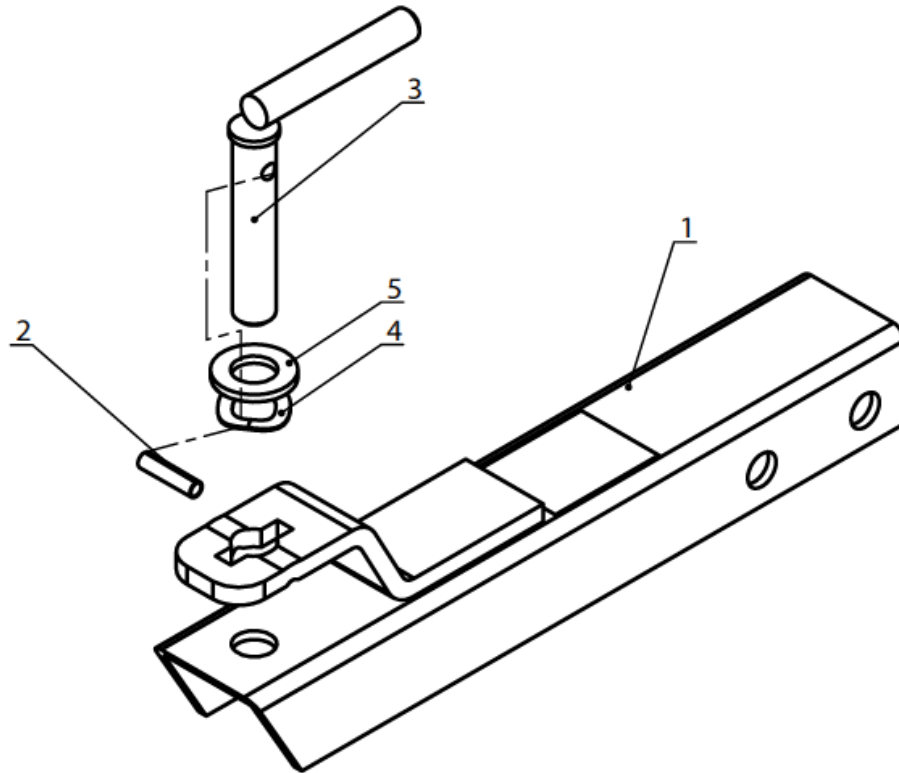
Parts Breakdown – Exploded View 141300 Rev. A



Parts Breakdown – Exploded View 141300 Rev. A

Item	Part Number	Description	Quantity
1	787563	Return Spring Assy.-Left	1
2	787564	Front Support Leg Assy.	1
3	Kit # 1	Hex Bolt M8x30	8
4	N/A	Beam Assy.	1
5	787565	Return Spring Assy.-Right	1
6	Kit # 1	Hex Bolt M10x70	1
7	787566	Push Plate Assy.	1
8	Kit # 2	Suction Hose	1
9	Kit # 2	Hose Clamp	2
10	N/A	Engine Assy.	1
11	Kit # 2	Nylon Cable	2
12	Kit # 2	High Pressure Hose Sleaving	1
13	Kit # 2	Combination Washer Φ14	1
14	Kit # 2	Inlet Hose (High Pressure Hose)	1
15	Kit # 1	Hex Bolt M10x100	1
16	Kit # 1	Flat Washer Φ10	4
17	Kit # 1	Lock Washer Φ10	4
18	Kit # 1	Hex Nut M10	2
19	Kit # 3	Axle Spacer-Long	1
20	N/A	Cylinder Assy.	1
21	787567	Rear Frame Assy.	1
22	787568	Wheel Axle	1
23	Kit # 3	Axle Spacer-Short	1
24	Kit # 3	Cotter Pin Φ3x22	2
25	Kit # 3/Kit #1	Flat Washer Φ16	6
26	787569	10" Flat Free Tire	2
27	Kit # 1	Hex Bolt M10x50	2
28	Kit # 1	Flat Washer Φ8	8
29	Kit # 1	Lock Washer Φ8	8
30	Kit # 1	Hex Nut M8	8
31	Kit # 3	Drive Pin	1
32	Kit # 1	Hex Bolt M16x35	4
33	Kit # 1	Lock Washer Φ16	4

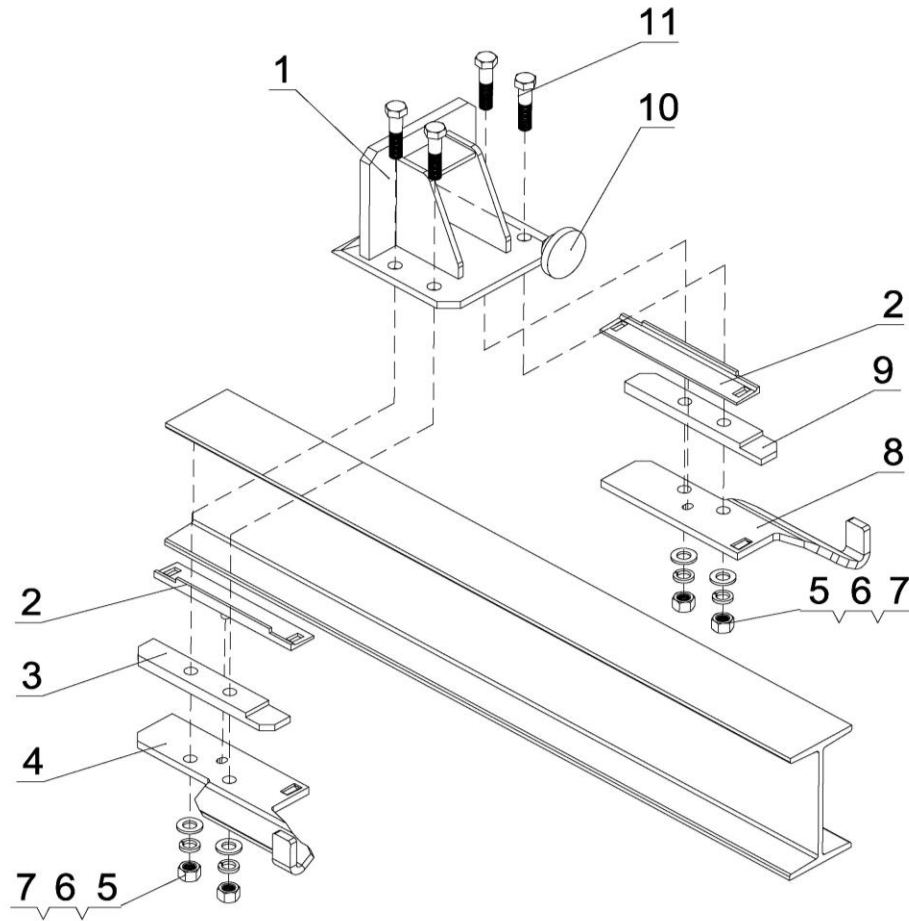
Parts Breakdown – Exploded View 141300 Rev. A



Item	Part Number	Description	Quantity
1	N/A	Front Support Leg Weldment	1
2	N/A	Round Pin	1
3	N/A	Hook Pin Weldment	1
4	N/A	Lock Washer Ø12	1
5	N/A	Flat Washer Ø12	1

* Assembly available on main parts explosion item #2

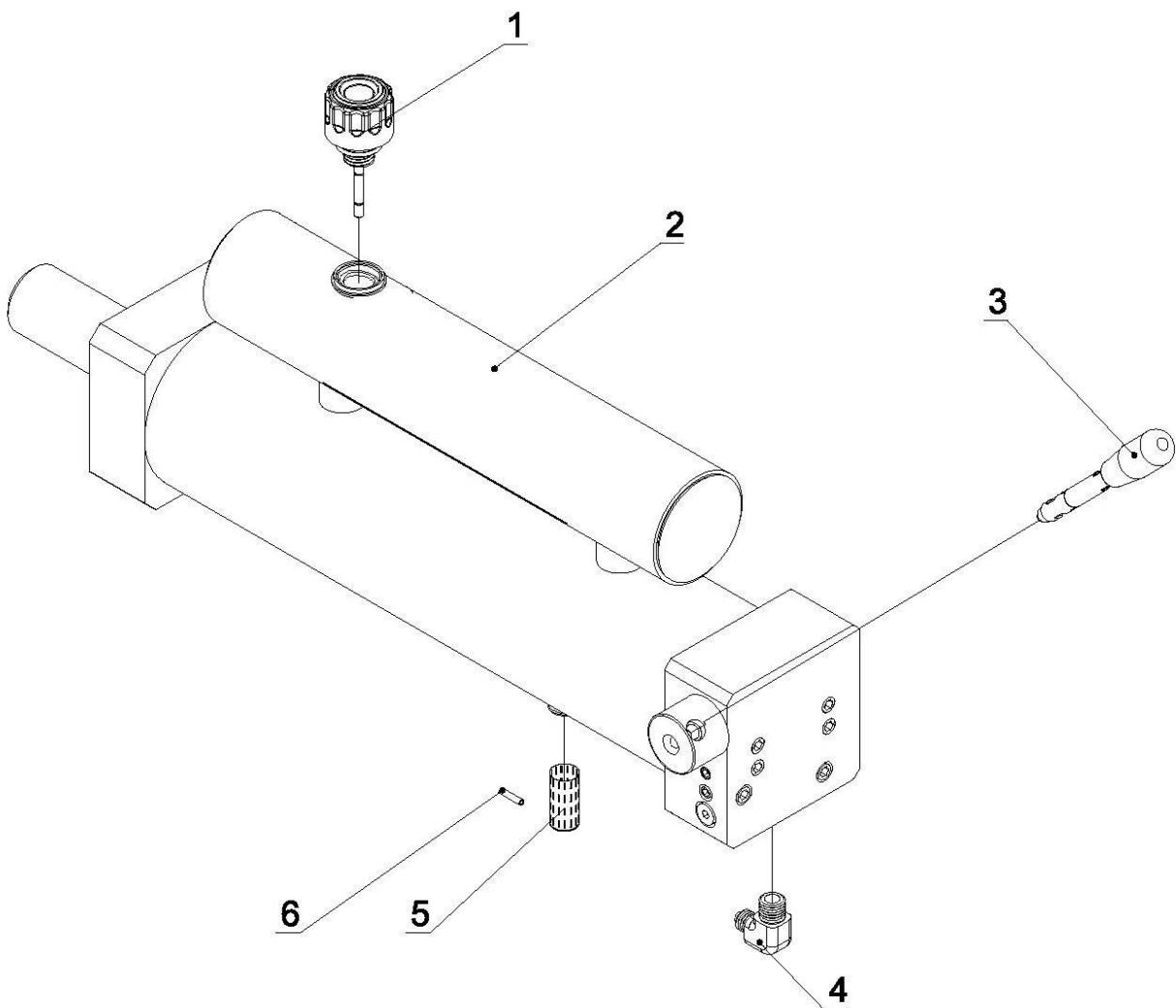
Parts Breakdown – Exploded View 141300 Rev. A



Item	Part Number	Description	Quantity
1	N/A	Push Plate Weldment	1
2	N/A	Nylon Plate	2
3	N/A	Middle Plate-Left	1
4	N/A	Hook Plate- Left	1
5	N/A	Hex Thick Nut M12	4
6	N/A	Lock Washer Ø12	4
7	N/A	Flat Washer Ø12	4
8	N/A	Hook Plate-Right	1
9	N/A	Middle Plate-Right	1
10	N/A	Push Block	1
11	N/A	Hex Bolt M12X50	4

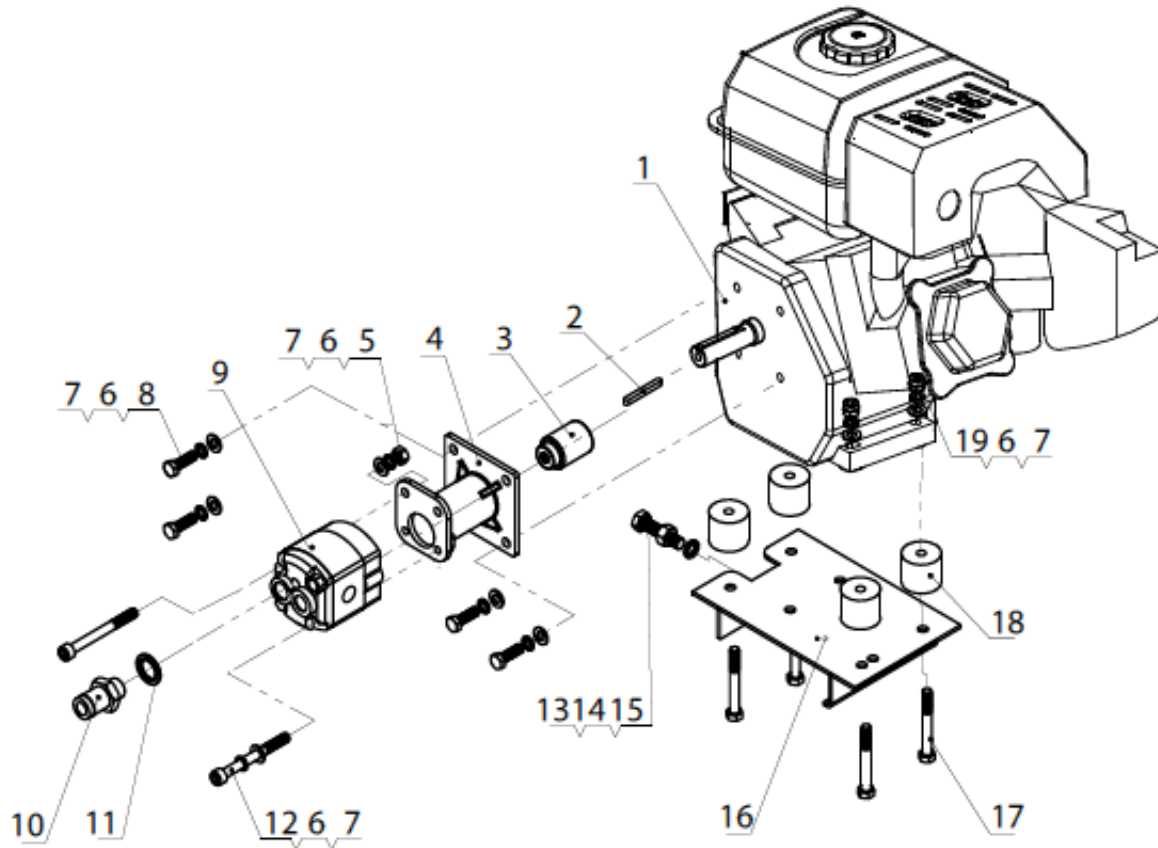
* Assembly available on main parts explosion item #7

Parts Breakdown – Exploded View 141300 Rev. A



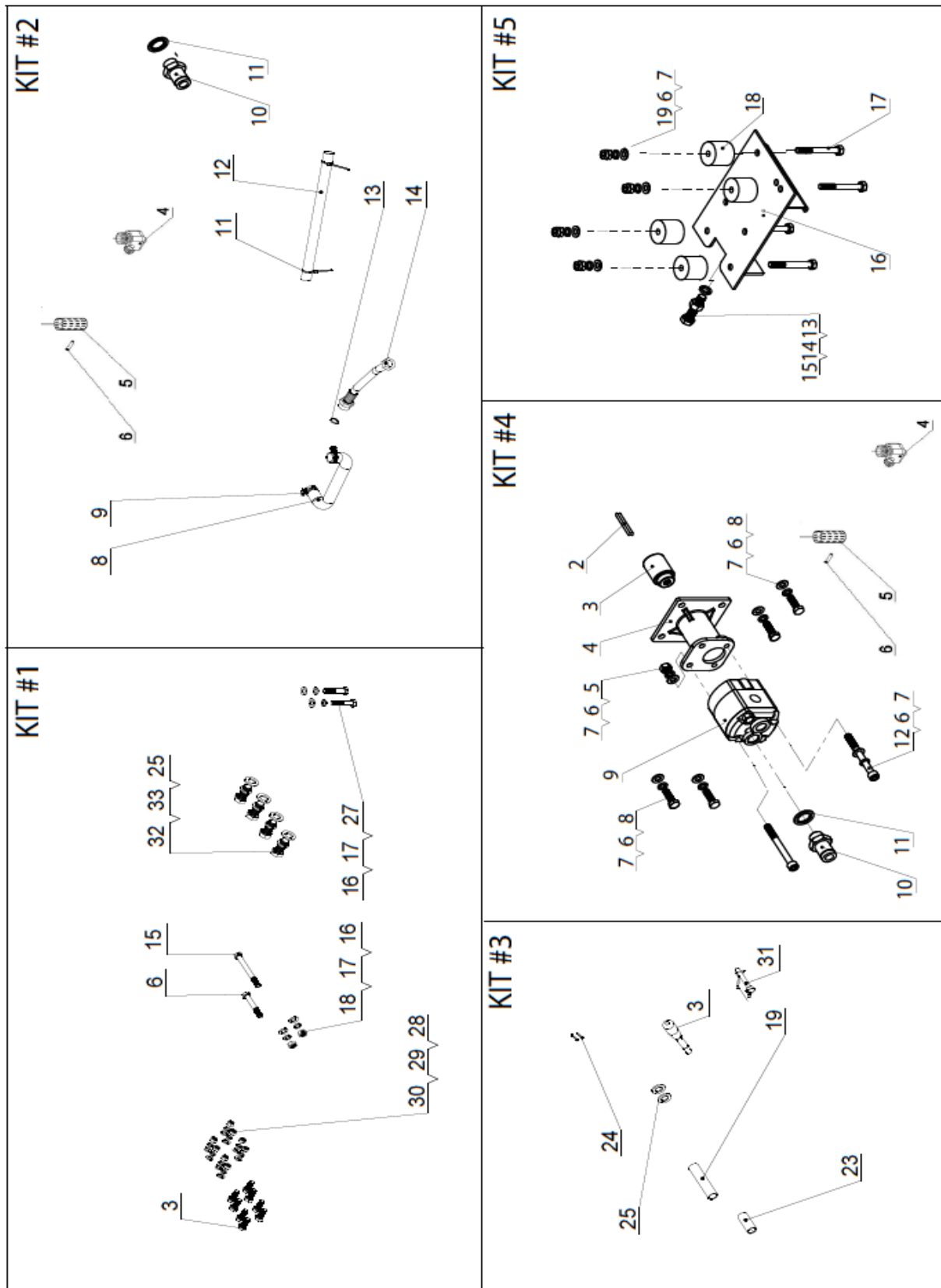
Item	Part Number	Description	Quantity
1	787571	Oil Tank Breather	1
2	787572	Cylinder	1
3	Kit # 3	Control Handle	1
4	Kit # 2/ Kit # 4	Inlet Connector	1
5	Kit # 2/ Kit # 4	Oil Filter	1
6	Kit # 2/ Kit # 4	Location Pin	1

Parts Breakdown – Exploded View 141300 Rev. A



Item	Part Number	Description	Quantity
1	787570	Engine	1
2	Kit # 4	Key	1
3	Kit # 4	Engine Connector	1
4	Kit # 4	Gear Pump Stand	1
5	Kit # 4	Nut M8	1
6	Kit # 4/ Kit # 5	Lock Washer Ø8	10
7	Kit # 4 / Kit # 5	Flat Washer Ø8	10
8	Kit # 4	Hex Bolt M8x25	4
9	Kit # 4	Gear Pump	1
10	Kit # 4/ Kit #	Suction Hose Connector	1
11	Kit # 4/ Kit #	Seal Washer Ø18	1
12	Kit # 4	Inner Hex Bolt M8x80	2
13	Kit # 5	Lock Washer Ø10	1
14	Kit # 5	Nut M10	1
15	Kit # 5	Hex Bolt M10x45	1
16	Kit # 5	Engine Mounting Plate	1
17	Kit # 5	Hex Bolt M8x65	4
18	Kit # 5	Rubber Block	4
19	Kit # 5	Lock Nut M8	4

Parts Breakdown – Exploded View 141300 Rev. A



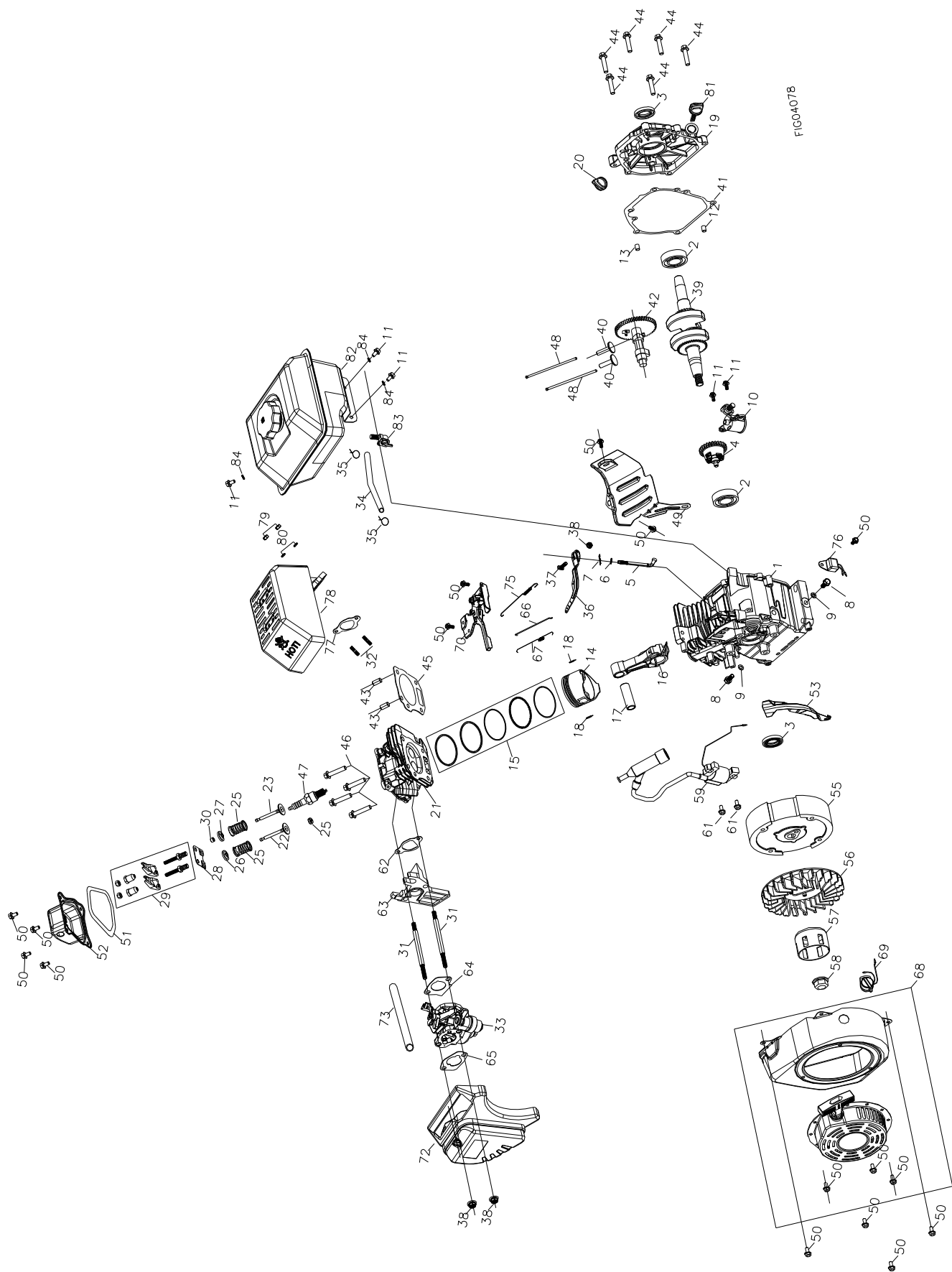
Parts Breakdown – Exploded View 141300 Rev. A

Kit #	Description	Item #	Items Included	Qty	Kit Part #	Kit Qty Needed
1	Bolt Kit	3	Hex Bolt M8x30	8	787558	1
		6	Hex Bolt M10x70	1		
		15	Hex Bolt M10x100	1		
		16	Flat Washer Φ10	4		
		17	Lock Washer Φ10	4		
		18	Hex Nut M10	2		
		25	Flat Washer Φ16	4		
		27	Hex Bolt M10x50	2		
		28	Flat Washer Φ8	8		
		29	Lock Washer Φ8	8		
		30	Hex Nut M8	8		
		32	Hex Bolt M16x35	4		
		33	Lock Washer Φ16	4		
2	Hose Kit	4 (Cylinder Parts View)	Inlet Connector	1	787559	1
		5 (Cylinder Parts View)	Oil Filter	1		
		6 (Cylinder Parts View)	Location Pin	1		
		10 (Pump Parts View)	Suction Hose Connector	1		
		11 (Pump Parts View)	Seal Washer Ø18	1		
		8	Suction Hose	1		
		9	Hose Clamp	2		
		11	Nylon Cable	2		
		12	High Pressure Hose Sleeving	1		
		13	Combination Washer Φ14	1		
		14	Inlet Hose (High Pressure Hose)	1		
3	Hardware Box Kit	3 (Cylinder Parts View)	Control Handle	1	787560	1
		19	Axle Spacer-Long	1		
		23	Axle Spacer-Short	1		
		24	Cotter Pin Φ3x22	2		
		25	Flat Washer Φ16	2		
		31	Drive Pin	1		
4	Pump Kit	2 (Pump Parts View)	Key	1	787561	1
		3 (Pump Parts View)	Engine Connector	1		
		4 (Pump Parts View)	Gear Pump Stand	1		
		5 (Pump Parts View)	Nut M8	1		
		6 (Pump Parts View)	Lock Washer Ø8	6		
		7 (Pump Parts View)	Flat Washer Ø8	6		
		8 (Pump Parts View)	Hex Bolt M8x25	4		
		9 (Pump Parts View)	Gear Pump	1		
		10 (Pump Parts View)	Suction Hose Connector	1		
		11 (Pump Parts View)	Seal Washer Ø18	1		
		12 (Pump Parts View)	Inner Hex Bolt M8x80	2		
		4 (Cylinder Parts View)	Inlet Connector	1		
		5 (Cylinder Parts View)	Oil Filter	1		
		6 (Cylinder Parts View)	Location Pin	1		

Parts Breakdown – Exploded View 141300 Rev. A

Kit #	Description	Item #	Items Included	Qty	Kit Part #	Kit Qty Needed
5	Engine Mounting Kit	6 (Pump Parts View)	Lock Washer Ø8	4	787562	1
		7 (Pump Parts View)	Flat Washer Ø8	4		
		13 (Pump Parts View)	Lock Washer Ø10	1		
		14 (Pump Parts View)	Nut M10	1		
		15 (Pump Parts View)	Hex Bolt M10x45	1		
		16 (Pump Parts View)	Engine Mounting Plate	1		
		17 (Pump Parts View)	Hex Bolt M8x65	4		
		18 (Pump Parts View)	Rubber Block	4		
		19 (Pump Parts View)	Lock Nut M8	4		

Engine Parts Breakdown – Exploded View 141300 Rev. A



Engine Parts Breakdown – Exploded View 141300 Rev. A

Item	Description	Part #	Qty	Item	Description	Part #	Qty
1	Crankcase	N/A	1	43	Pin, Dowel	N/A	2
2	Ball bearing	N/A	2	44	Bolt	N/A	6
3	Oil Seal	N/A	2	45	Gasket, Cylinder Head	N/A	1
4	Governor Assembly	N/A	1	46	Bolt	N/A	4
5	Shaft, Governor Arm	N/A	1	47	Spark Plug	786736	1
6	Washer, Governor Arm Shaft	N/A	1	48	Rod, Push	N/A	2
7	Pin, Lock	N/A	1	49	Shroud	N/A	1
8	Bolt, Drain Plug	Kit # 3	2	50	Bolt	Kit # 5/# 8	13
9	Washer, Drain Plug	Kit # 3	2	51	Packing, Head Cover	Kit # 5	1
10	Switch Assembly, Oil Level	N/A	1	52	Cover Comp, Cylinder Head	Kit # 5	1
11	Bolt	Kit # 7	5	53	Wind Shield Comp.	N/A	1
12	Dowel pin, Case Cover	N/A	1	54	Bolt	N/A	1
13	Dowel pin, Case Cover	N/A	1	55	Flywheel Assembly	N/A	1
14	Piston	N/A	1	56	Fan, Recoil Starter	Kit # 8	1
15	Scraper Ring Set ,Piston	N/A	1	57	Pulley, Starter	Kit # 8	1
16	Rod Assembly, Connecting	N/A	1	58	Nut M14	Kit # 8	1
17	Pin, Piston	N/A	1	59	Ignition Coil Assembly	Kit # 6	1
18	Clip, Piston	N/A	2	60	Clip	N/A	2
19	Cover Assembly, Crankcase	N/A	1	61	Bolt	Kit # 6	2
20	Oil Plug	N/A	1	62	Packing, Intake	Kit # 2	1
21	Cylinder head	N/A	1	63	Insulator, Carburetor	Kit # 2	1
22	Valve, In	N/A	1	64	Packing, Carburetor	Kit # 2	1
23	Valve Exhaust	N/A	1	65	Spacer, Carburetor	Kit # 2	1
24	Returner, Intake Valve	N/A	1	66	Rod, Governor	N/A	1
25	Spring, Valve	N/A	2	67	Spring, Throttle Return	N/A	1
26	Seat, Valve Spring, In	N/A	1	68	Recoil Starter Assembly (Black)	Kit # 8	1
27	Seat, Valve Spring, Ex	N/A	1	69	Switch Assembly	Kit # 8	1
28	Plate, Push Rod Guide	N/A	1	70	Shroud Assembly, Upper	N/A	1
29	Rocker Assembly	N/A	2	71	Speed Regulating Handle	N/A	1
30	Cap	N/A	1	72	Air Cleaner Assembly	Kit # 1	1
31	Bolt, Stud	Kit # 2	2	73	Tube, Breather	Kit # 1	1
32	Bolt, Stud	Kit # 4	2	74	Clip	N/A	1
33	Carburetor Assembly	Kit # 2	1	75	Spring, Governor	N/A	1
34	Fuel line	Kit # 7	1	76	Amplifier	N/A	1
35	Clip, Fuel Line	Kit # 7	2	77	Packing, Exhaust	Kit # 4	1
36	Governor Arm	N/A	1	78	Muffler	Kit # 4	1
37	Bolt, Governor Arm	N/A	1	79	Nut M8	Kit # 4	2
38	Nut	Kit # 1	3	80	Spring Washer	Kit # 4	2
39	Crankshaft Assembly	N/A	1	81	Dipstick	N/A	1
40	Lifter, Valve	N/A	2	82	Fuel Tank Assembly (Black)	Kit # 7	1
41	Packing, Case Cover	N/A	1	83	Fuel Cock	Kit # 7	1
42	Camshaft Assembly	N/A	1	84	Spring Washer	Kit # 7	3

Engine Part Kits - 141300 Rev. A

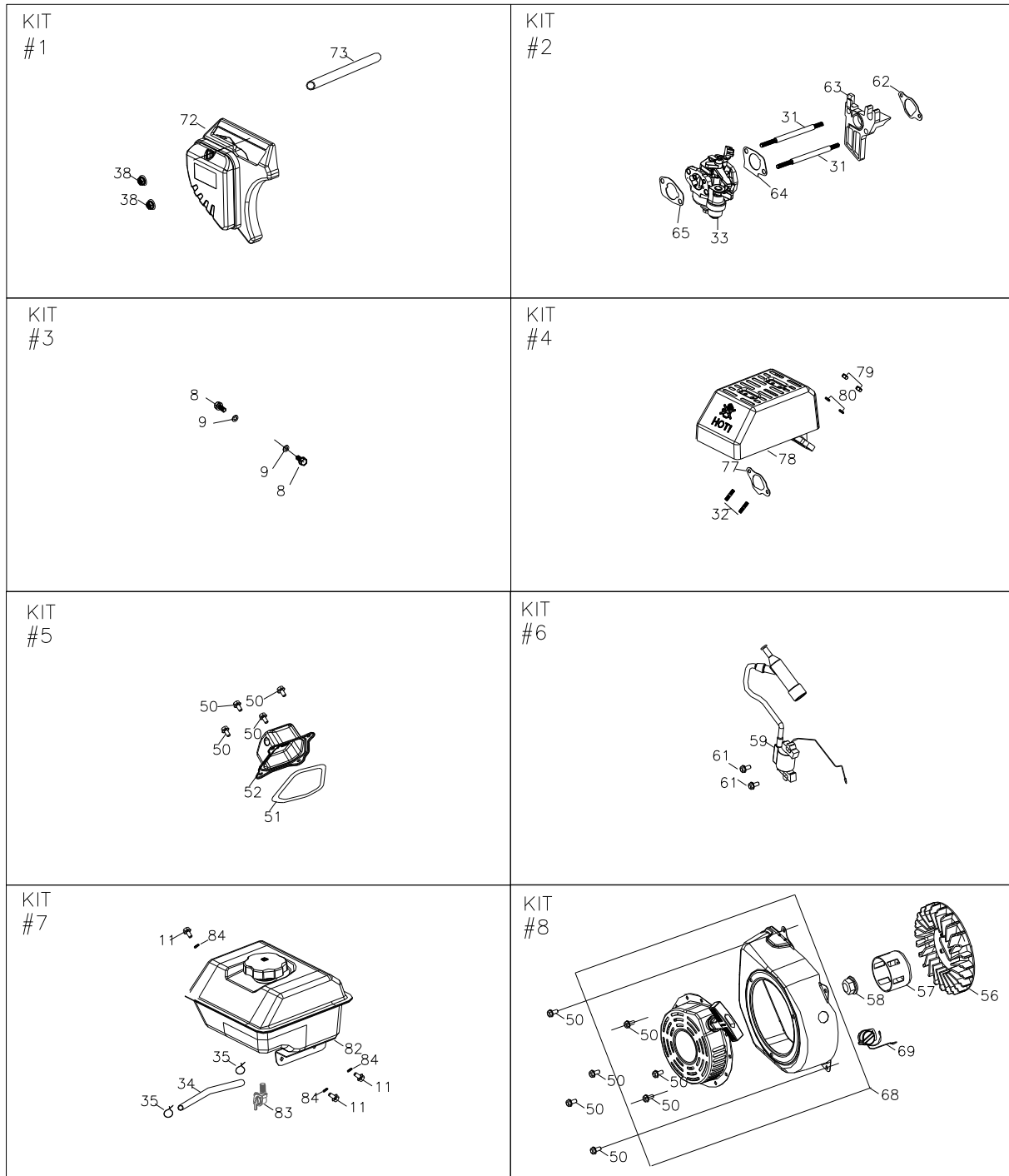


FIG04077

Kit #	Description	Part #	Qty.
1	Air Cleaner Kit	786729	1
2	Carburetor Kit	786730	1
3	Drain Bolt Kit	783126	1
4	Muffler Kit	786732	1
5	Valve Cover Kit	786731	1
6	Ignition Coil Kit	786735	1
7	Tank Kit	787508	1
8	Recoil Assembly Kit	787509	1

Engine Operation

Safety

CAUTION

- This engine is shipped without oil. If you start the engine without oil, the engine will be damaged beyond repair and will not be covered under warranty.



WARNING

Gasoline and its vapors are extremely flammable and explosive. Fire or explosion can cause severe burns or death.

WHEN ADDING FUEL

- Turn engine OFF and let engine cool at least 2 minutes before removing gas cap.
- Fill fuel tank outdoors or in well-ventilated area.
- Do not overfill fuel tank.
- Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

WHEN STARTING ENGINE

- Make sure spark plug, muffler, fuel cap and air cleaner are in place.
- Do not crank engine with spark plug removed.
- If fuel spills, wait until it evaporates before starting engine.
- If engine floods, set choke to OPEN/RUN position, place throttle in FAST and crank until engine starts.

WHEN OPERATING EQUIPMENT

- Do not choke carburetor to stop engine.

WHEN TRANSPORTING EQUIPMENT

- Transport with fuel tank EMPTY.

WHEN STORING GASOLINE OR EQUIPMENT WITH FUEL IN TANK

- Store away from furnaces, stoves, water heaters or other appliances that have pilot light or other ignition source because they can ignite gasoline vapors.



WARNING

Starting engine creates sparking. Sparking can ignite nearby flammable gases. Explosion and fire could result.

- If there is natural or LP gas leakage in area, do not start engine.
- Do not use pressurized starting fluids because vapors are flammable.



WARNING

Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go. Broken bones, fractures, bruises or sprains could result.

- When starting engine, pull cord slowly until resistance is felt, then pull rapidly.
- Direct coupled equipment components such as, but not limited to, blades, impellers, pulleys, sprockets, etc., must be securely attached.



WARNING

Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories. Traumatic amputation or severe laceration can result.

- Operate equipment with guards in place.
- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewelry.
- Do not wear loose-fitting clothing, dangling drawstrings or items that could become caught.



WARNING

Engines give off carbon monoxide, an odorless, colorless, poison gas. Breathing carbon monoxide can cause nausea, fainting or death.

- Start and run engine outdoors.
- Do not start or run engine in enclosed area, even if doors or windows are open.



WARNING

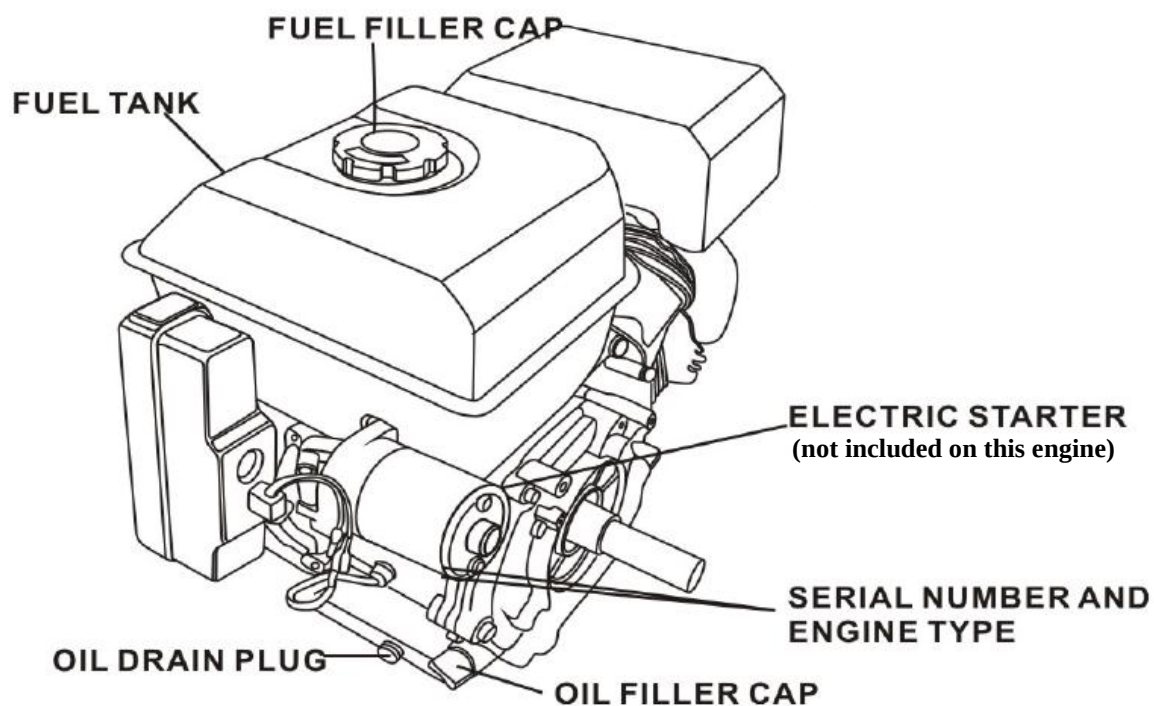
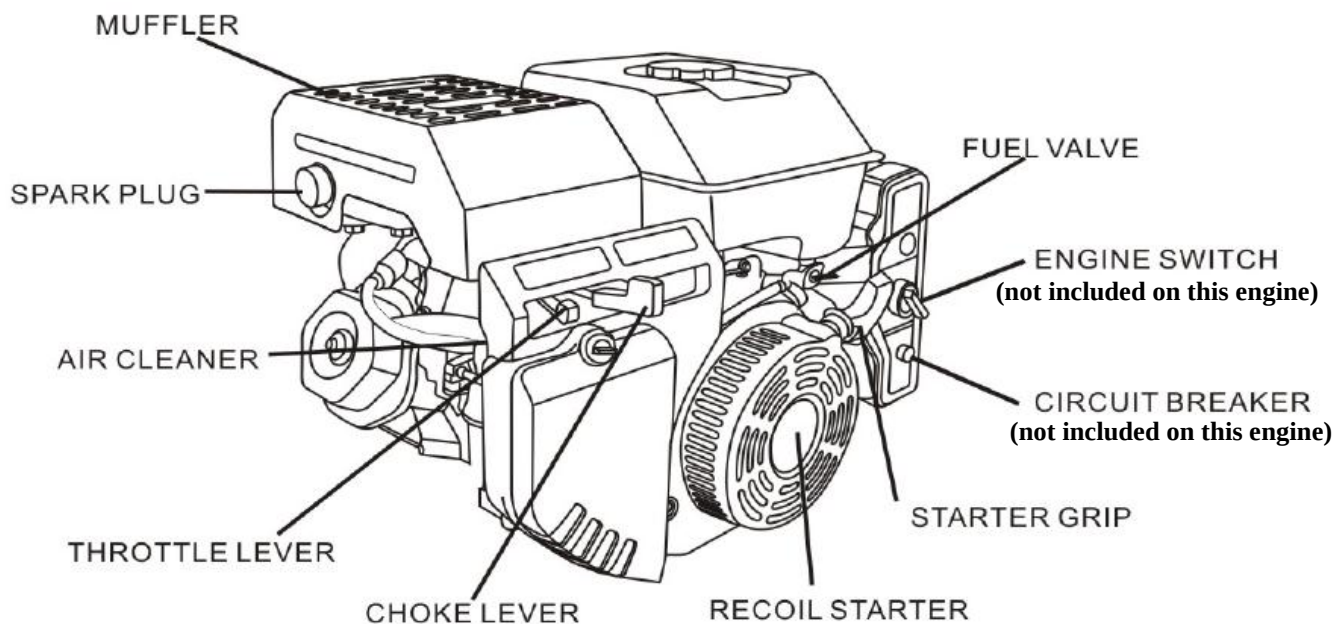
Running engines produce heat. Engine parts, especially muffler, become extremely hot. Severe thermal burns can occur on contact. Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated debris from muffler area and cylinder area.
- Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this. Other states may have similar laws. Federal laws apply on federal land.

Engine Operation

PARTS DESCRIPTION

The main parts of engine are located as follows



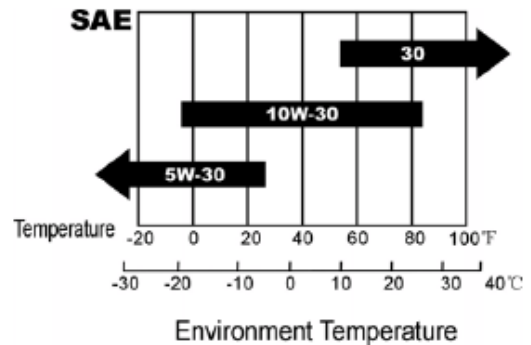
Engine Operation

PRE-OPERATE INSPECTION

ENGINE OIL

CAUTION:

- Engine oil is key factor in deciding the engine's performance. Do not apply engine oil with additives or 2-stroke gasoline oil, as they haven't enough lubrication, which may shorten the engine's service life.
- Check the engine with it stopped on a level ground. Engine oil recommended: SAE10W-30
As viscosity varies with regions and temperatures, so the lubricant has to be selected in accordance with our recommendation.



Check (see figure2)

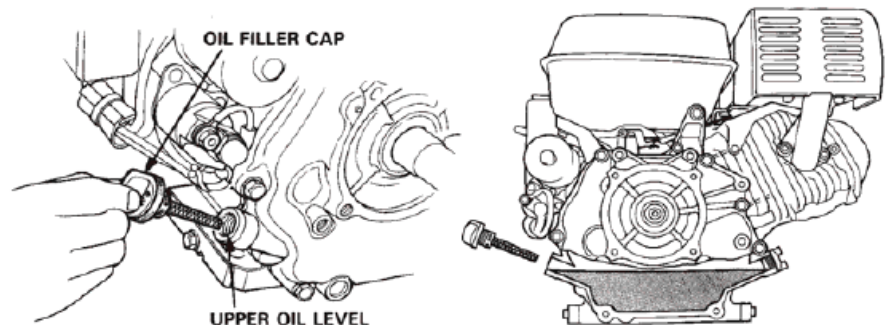


Figure2

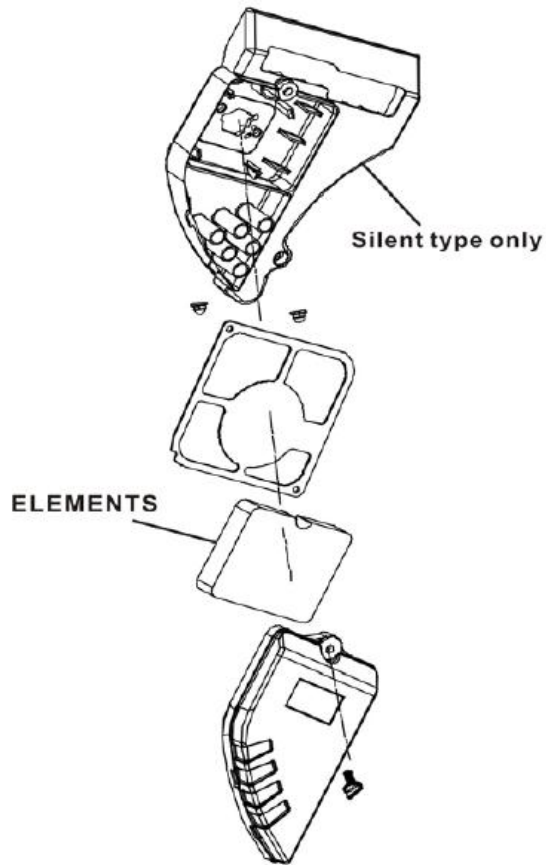
1. Ensure that the engine is stopped on a level ground.
2. Remove the dipstick and clean it.
3. Reinsert the dipstick into the oil filler without screwing it, and check oil level.
4. If the oil level is too low, add the recommended engine oil up to the oil filler neck.
5. Reinstall the dipstick.

CAUTION: Run with insufficient engine oil may damage the engine severely.

Engine Operation

AIR CLEANER

Dismantle the air cleaner housing and check its filter element, make sure it is clean and intact, otherwise clean or replace.



CAUTION:

Never run the engine without an air cleaner, or severe wear of the engine may result.

Engine Operation

FUEL AND FUEL TANK

Fuel

To ensure that the engine runs smoothly use only **FRESH, UNLEADED GAS WITH AN OCTANE RATING OF 87 OR HIGHER**. Using unleaded gasoline will decrease the possibility of producing carbon deposit and will prolong the engine's service life. Never apply used or polluted gasoline or a mixture of gasoline with engine oil. Make sure the fuel is free of dirt and water.

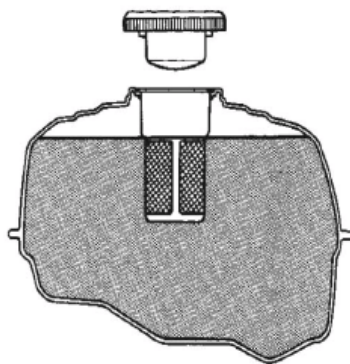
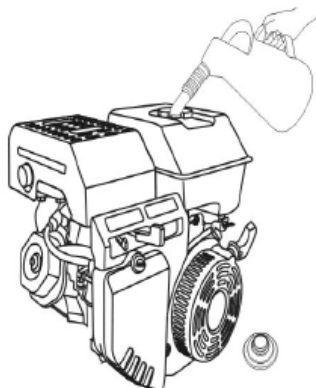
Gasoline Containing Alcohol

If you decide to use a gasoline containing alcohol (fuel blend), be sure its octane rating is at least as high as that recommended by the company. There are two types of "gasohol". One contains ethanol, and the other contains methanol. Neither gasoline containing more than 10% ethanol nor 5% methanol is allowed to be used. If methanol content in the fuel blend exceeds 5%, it may bring bad effect on the engine performance, besides, it may damage metals, rubber and plastic parts.

CAUTION: Handle fuel with care because it changes plastic and painted surface.

It is normal when you hear occasionally light spark knock or pinking with the engine running under heavy load.

If "spark knock" or "pinking" occurs at a steady speed under normal load, change brand of gasoline; if such phenomena still happen, consult your dealer for help, otherwise the engine may be damaged.

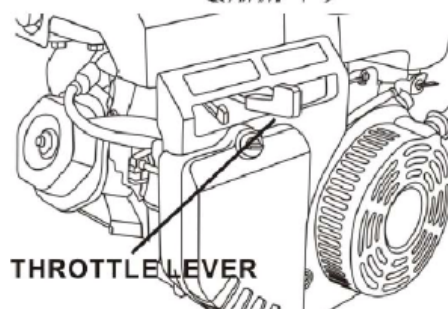
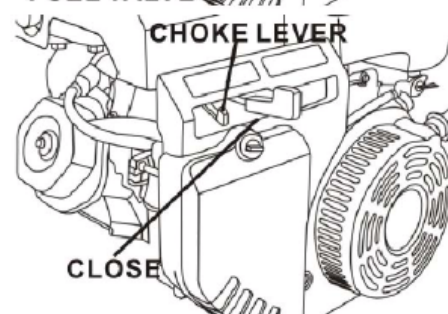
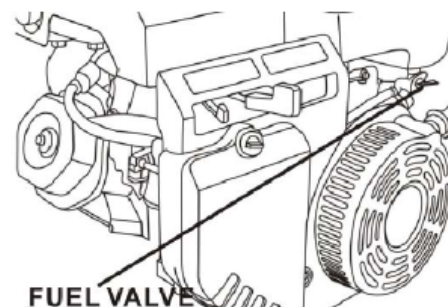


Fuel Tank

Fuel tank capacity: 3 liters for 208cc

Check

1. Remove the fuel filler cap and check fuel level.
2. If the fuel level is too low, refuel the tank. Remember adding fuel not over the fuel filler shoulder.



Engine Operation

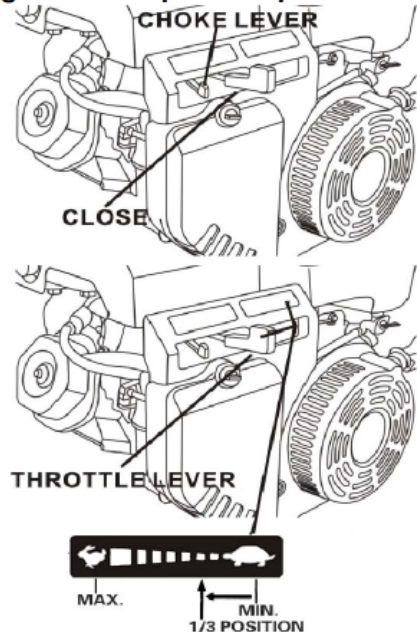
WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. Refueling in a well-ventilation area with the engine stopped. Do not smoke and allow flames or sparks in the area where gasoline is stored or where the fuel tank is refueled.
- Do not overfill the tank (there should be no fuel in the filler neck). After refueling, make sure the fuel filler cap is set back securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of fuel vapor. Keep out of reach of children.

STARTING THE ENGINE

1. Push the fuel cock to "ON".
2. Push the choke lever to "CLOSE". (see figure 3)
NOTE: if the engine is hot, closing the choke is unnecessary.

3. Move left the throttle lever a little. (see figure 3)



F
Figure3

4. Start the engine as follows: (see figure4)
 - a) Hand-operated kick-starter Push the engine switch to "ON". Pull slightly the starting rope handle up until feeling anti-action, and then make a rapid pull.

CAUTION:

Releasing the handle suddenly may make it hitting the engine. Release the handle slowly conforming to its recoiling force.

b) Electric starter

Push the engine switch to "START" and remain there until the engine starts. Once the engine starts, reset the engine switch to "ON".

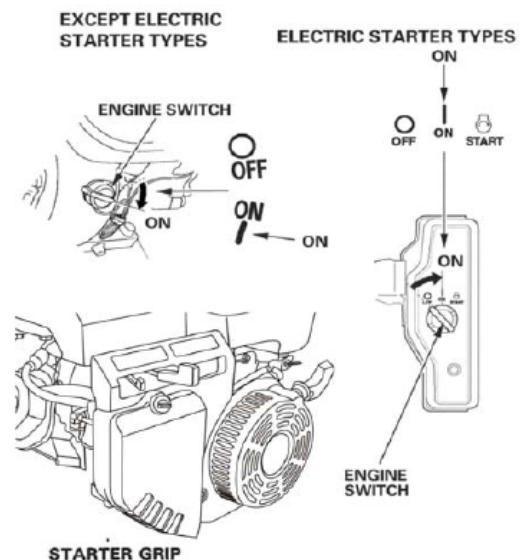


Figure4

Engine Operation

CAUTION:

Use the engine switch not more than 5 minutes each time to avoid damage of the engine. Try once more 10 minutes later after last attempt failures.

ENGINE OIL ALARM

The engine oil alarm is designed to function when the engine oil in the crankcase is insufficient. Lack of engine oil may damage the engine. Oil may damage the engine. Once oil level in the crankcase is too low, the engine oil alarm will stall the engine automatically to make it free of damage while the engine switch is still at "ON".

CAUTION:

If cannot restart the engine, check the engine oil level first before go to other check items.

PROTECTOR (Electric-start type)

The breaker will cut off automatically to protect the charging circuit of the battery in the case that short circuit or incorrect connection of the battery poles occurs.

The green indicator in the breaker will jump out with the circuit cutting off. After finding troubles and troubleshooting, depress the breaker button to tune the breaker on.

OPERATING ON HIGHLANDS

On highlands, the standard mixture ratio is relatively too big so the engine performance may be impaired while the fuel consumption may increase, besides, too big mixture ratio will pollute the spark plug to result in starting the engine difficultly. This problem can be solved by amending the carburetor technological status. If always using on highlands with a height above sea level of 1800 meters, ask your dealer for doing the job.

Engine Operation

CAUTION:

Amended engine applicable to highlands may be damaged seriously in area below altitude of 1800 meters for overheating, because its mixture ratio is too small for operation in low altitude area. In the case, ask your dealer to recover the engine to its normal technical status.

STOP

In emergency, push the engine switch to "OFF" to stall the engine; to stop it in normal, do as follows: (see figure5)

1. Push right the throttle lever to the bottom.
2. Push the engine switch to "OFF".
3. Set the fuel cock to "OFF".

CAUTION:

Sudden stopping at high speed under heavy load is forbidden, otherwise damage will result.

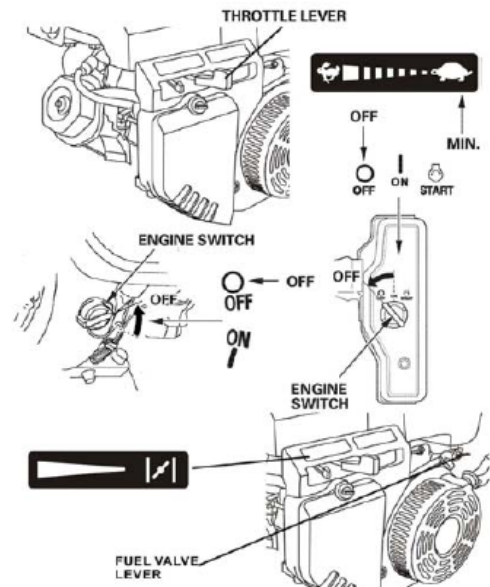


Figure5

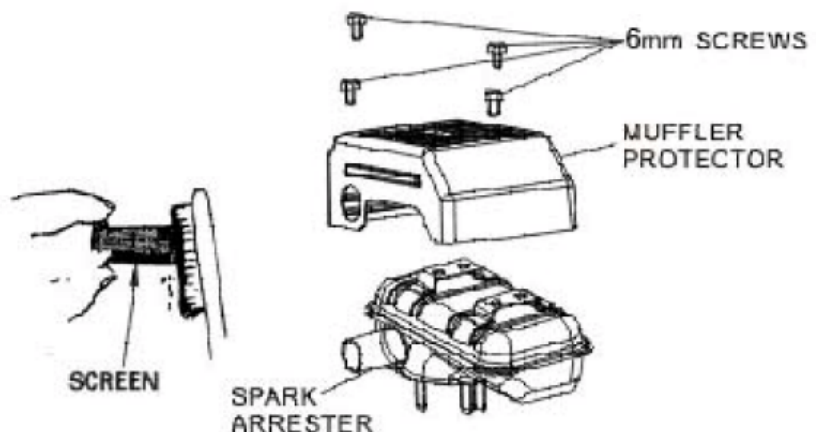
EXHAUST CONTROL SYSTEM

With the engine running, carbon monoxide, oxide of nitrogen and hydrocarbon will produce, and in certain conditions, oxide of nitrogen and hydrocarbon will react chemically each other to make smoke while carbon monoxide is toxic, so exhaust control of them is very important. The company decreases the exhaust emissions by introducing poor-fuel carburetors and other devices into the engine to solve the problem.

To keep the exhaust of your engine with in the standard exhaust emission, pay attention to the following:

1. Maintenance

Maintain the engine periodically in accordance with the maintenance schedule in the manual. The maintenance schedule is made out on the base of normal use in normal conditions, if using under heavy load, dusty or wet circumstances or in high temperature, service of the engine should be done more often.



Engine Operation

2. Replacement of Parts

We recommend that you should choose such parts which are manufactured by the company or equivalent to these in quality as replacement ones. Replacement without so high quality as the original may impair the exhaust the exhaust control system in effectiveness.

3. Modifying

Modifying the exhaust control system may make actual exhaust emissions exceeding statutory limit values. Illegal modification as such:

- Dismantle or modify any part of air intake or exhaust system.
- Modify or take off speed-adjusting connection device or speed adjustment device to result in the engine's running beyond the set parameters.

4. Problems Affecting Exhaust Emissions

- Difficult starting or difficult stopping.
- Unstable idling.
- Give off black smoke or consume too much fuel.
- Poor ignition sparks or sparks returned.

Once you find any of above problems, contact your dealer for help.

MAINTENANCE

MAINTENANCE SCHEDULE

Frequency Item		Each time	First month or 20 hrs	Each season or 50 hrs	Every month 100 hrs	6 or 300 hrs
Engine oil	Oil level check	√				
	Replace		√		√	
Reduction gear oil	Oil level check	√				
	Replace		√		√	
Air cleaner	Check	√				
	Clean			√①	√②*	
	Replace					√**
Deposit cup	Clean				√	
Spark plug	Clean, adjust				√	
	Replace					√
Spark eliminator	Clean				√	
Idling	Check-adjust					√②
Valve clearance	Check-adjust					√②
Fuel tank & fuel filter	Clean					√②
Fuel supply line	Check	Every two years (do a replacement if necessary)				

CAUTION:

Use only parts from the company or equivalents in quality; otherwise engine damage may result.

NOTE:

*: only for inside-ventilating double-core carburetors.

** : only for paper core air cleaners. Every two years or 600 hours' later for dust collecting air cleaners.

① More often than that in the schedule if in dusty circumstances.

② Should be done by your dealer unless you are specially trained and is well equipped with tools.

Engine Operation

WARNING

Stall the engine before service. If service is required with the engine running, be sure to keep good ventilation in the area. The exhaust emissions from the engine contain toxic carbon monoxide, inbreathing of it may result injury and even death.

REPLACEMENT OF ENGINE OIL

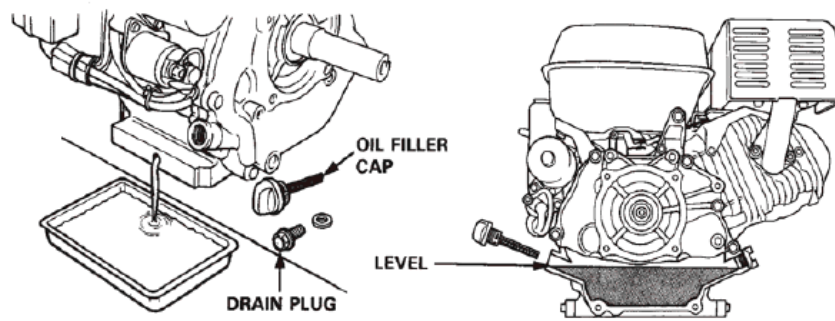


Figure6

A still hot engine is helpful to drain out the engine oil in the crankcase rapidly and entirely.(see figure6)

1. Turn off the oil filler cap and drain plug to drain engine oil thoroughly. Reinstall the drain plug and screw in securely.
2. Fill the specified engine oil up to the upper level mark.
3. Reinstall the oil filler cap.

engine oil capacity in the crankcase is: 0.6 liters.

NOTE:

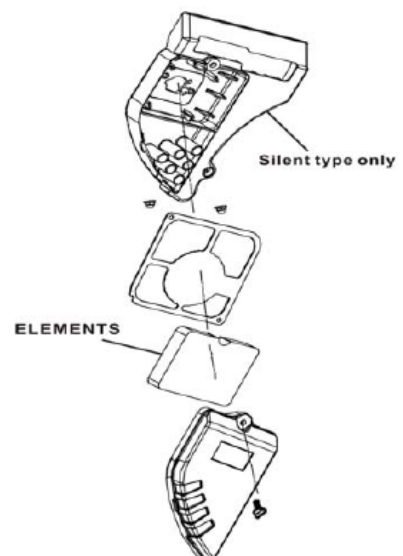
Do not dump oil containers or discarded engine oil into rubbish boxes or onto the ground. For the sake of environmental protection, we suggest you take in discarded engine oil with a closed container and bring to local recycling station.

SERVICE OF AIR CLEANER

A dirty air cleaner may block enough air's flowing into the carburetor. To keep the carburetor in good working conditions, please service the air cleaner periodically. If operating the engine in extremely dusty area, the job should be done more often.

WARNING

Never clean the air cleaner core in gasoline or low flash-point detergents, or explosion may happen.

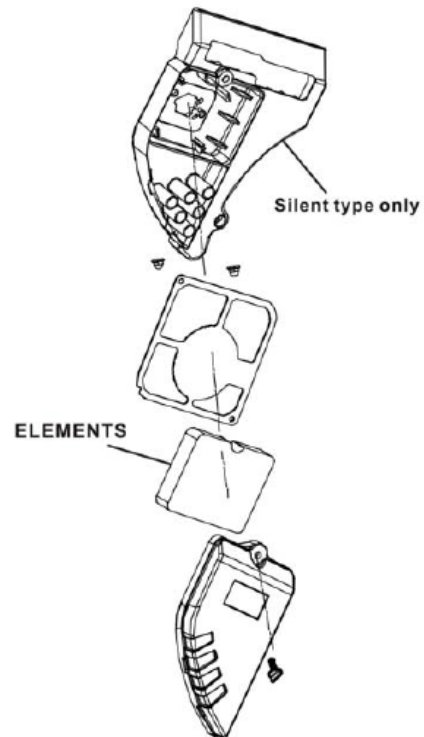


Engine Operation

CAUTION:

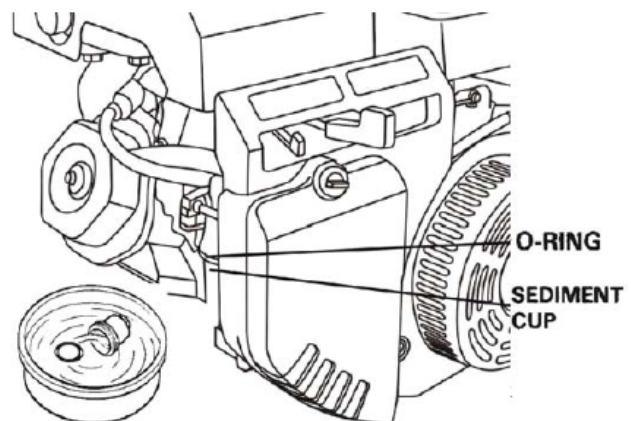
Never run the engine without an air cleaner, or air with dirt and dust may enter the engine so speed the engine's wear.

1. Remove the wing nut and air cleaner housing, and take out the filter element.
2. Clean with home detergents (or high flash-point cleansing solvents) and warm water, and dry up.
3. Soak in clean engine oil until saturated; squeeze excess oil, or the engine will exhaust smoke in starting stage.
4. Reinstall the filter element and air cleaner housing.



WASHING OF DEPOSIT CUP

Set the fuel cock at "OFF", disconnect the deposit cup and O-ring. Wash in non-flammable or high flash-point cleansing solvents, and then try them up, at last, reinstall it. Set the fuel cock to "ON" and check for leaks.



⚠ WARNING

Gasoline is extremely flammable and explosive in certain condition. Keep cigarette, sparks and open flames away.

- After reinstalling the deposit cup, make sure the area around the engine is dry enough.

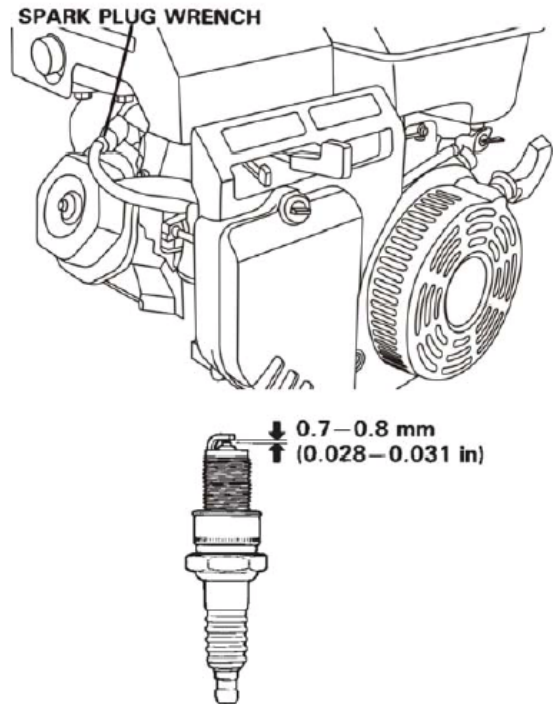
Engine Operation

SPARK PLUG

Spark plug type: F7TC/ F7RTC

Proper spark plug clearance ensures the engine's normal running under no deposit around the spark plug.  Warning be careful not to touch the muffler during or just after running the engine.

1. Remove the spark plug cap.
2. Clear away dirt around the spark plug base.
3. Dismantle the spark plug with a spark plug wrench.
4. Clean with a steel brush. If the insulator is damaged, replace the spark plug instead.
5. Measure the spark plug clearance with a feeler. The clearance should be 0.7~0.8mm. If adjustment is necessary, bend the side electrode carefully.
6. Check if the spark plug gasket is in good conditions, or replace with a new one. Screw on the spark plug to the bottom first by hand and then screw in by a spark plug wrench. If a new spark plug is used, twist 1/2 more turns after impacting the gasket, if reinstall the original one, just twist 1/8-1/4 more turns.



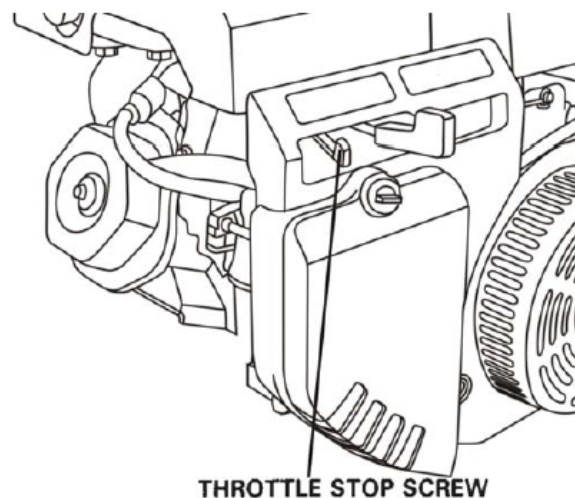
CAUTION:

- The spark plug must be tightened securely, or it may become very hot to damage the engine.
- Only use recommended spark plug or the equivalent. Incorrect heat range of the spark plug may damage the engine.

CARBURETOR

IDLING ADJUSTMENT

1. Start and preheat the engine until arriving at the normal working temperature.
2. Obtain standard idling by adjusting the throttle fixing screw under the engine's idling. Standard idling: 1500±150rpm.



Engine Operation

TRANSPORT, STORAGE AND REMOVAL FROM STORAGE

TRANSPORT

Transport with the fuel cock turned off. Transport or store the engine when it is cool so as to avoid getting burns or fire.

CAUTION:

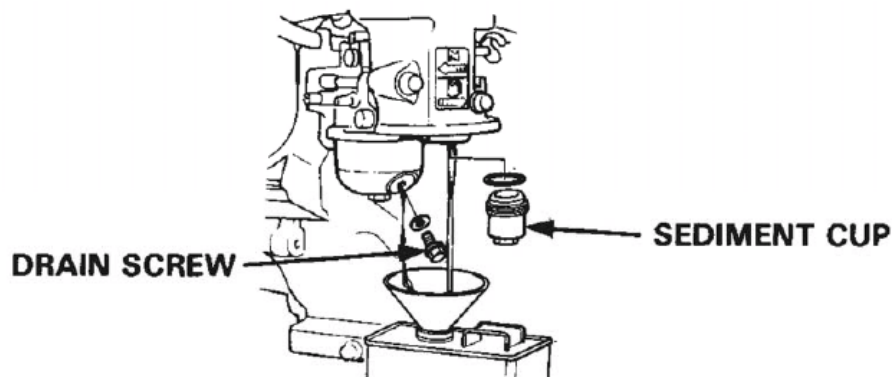
Do not incline the engine so as to avoid fuel's spill. Spilled fuel or fuel vapor may ignite to cause fire.

STORAGE

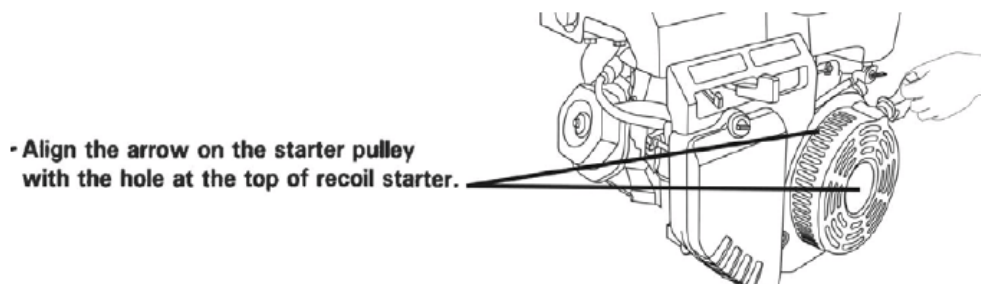
If the engine is not kept in use for a long time, be sure to store it properly. Make sure the storage area is dry and free of dust.

1. Drain the fuel ...
 - a. With the fuel valve in the OFF position, remove and empty the sediment cup.
 - b. Turn the fuel valve to the ON position and drain the gasoline from the fuel tank into a suitable container.
 - c. Replace the sediment cup and tighten securely.
 - d. Drain the carburetor by loosening the drain screw. Drain the gasoline into a suitable container.

WARNING: Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in the area.



2. Replace engine oil.
3. Disconnect the spark plug. Fill about a spoon of fresh engine oil from the spark plug mount hole into the cylinder. Crank the engine up to distribute engine oil evenly. Reinstall the spark plug.
4. Pull the starting rope slowly until feeling a slight anti-action, and then keep pulling it so as to align the arrow of the starting sleeve with the hole of the starter. At this time, both the inlet and outlet valves are closed so help prevent the engine inside from rusting.



Engine Operation

5. Electric starter: disconnect the battery and store in dry and cool area. Charge once every month.
6. Cover the engine so keep dust away.

REMOVAL FROM STORAGE

Before reusing, service the engine in accordance with the instruction of the table

STORAGE TIME	SERVICE ITEM
Within one month	Non
One ~ two months	Drain out original fuel of the fuel tank and refuel
Two month ~ one year	Drain out original fuel of the fuel tank and refuel; Drain out fuel in the carburetor ^① ; Empty the deposit cup ^②
Above one year	Drain out original fuel of the fuel tank and refuel; Empty the fuel cup in the carburetor ^① ; Empty the deposit cup ^②

(1) Screwing off the drain plug and draining out fuel in the carburetor.

(2) Turn off the engine switch first, disconnect the deposit cup and empty it.

Note: for the sake of environmental protection, we recommend to fill the discarded fuel into a closed container and bring to local recycling station. Never pour freely.

WARNING

Fuel is extremely flammable and explosive under certain conditions. Keep cigarette, open flames and sparks away from operating site.

Engine Operation

MAIN SPECIFICATIONS

Model Items	DJ170N	DJ190N	
Engine type	4-strok, OHV,25°,single-cylinder, force air-cooled		
bore ×stroke(mm)	70×54	90×66	
Rated power(kW/rpm)	4.2/3600	8.5/3600	
Max. torque(N·m/rpm)	13.2/2800	28.5/2800	
Displacement(ml)	208	420	
Starting type	recoil	Recoil	Electric start
Ignition type	Induction ignition		
Lubricating type	Splashing		
Fuel consumption (g/kW-h)	≤395	≤375	
Dry weight	35.3lbs	77 lbs.	
Dimension(L×W×H)(in.)	16.54x14.96x15.75	18.9x16.93x19.69	

TROUBLESHOOTING

I. START ENGINE DIFFICULTLY

1. By using kick-starter

TROUBLE	CAUSE	REMEDY
1. Normal cylinder compression. 2. Normal spark plug spark. 3. Something wrong with the fuel system. 4. Fuel supply is not smooth or no fuel supply.	There is no enough fuel in fuel tank of fuel cock is closed.	Fill fuel, open fuel cock.
	Air vent in the fuel filler cap is clogged.	Dredge air vent.
	Fuel cock is clogged.	Clean first and then dredge.
	Improper or clogged main oil flow hole.	Readjust or clean, blow to get through.
	Needle valve is not closed properly or start hole is clogged.	Dismantle needle valve and repair, clean, blow to get through.
	Float is damaged or sticking.	Repair float
1. Normal cylinder compression.	Fuel is too filthy or deteriorated	Replace
2. Normal spark plug	There is water in fuel	Replace

Engine Operation

spark. 3. Something wrong with the fuel system. 4. Smooth fuel flow.	Too much fuel in engine	Drain extra fuel, dry up spark plug electrodes
	Wrong fuel brand	Select proper fuel brand corresponding with the requirements
1. Normal cylinder compression. 2. Normal fuel supply. 3. Normal high-pressure coil spark. 4. Spark plug is in bad conditions.	Too much carbon deposit and dirt around electrodes.	Clear away
	Electrodes are burn damaged seriously or insulators damaged	Replace spark plug
	Improper electrodes gap	Adjust to proper value
1. Normal cylinder compression. 2. Normal fuel supply. 3. No high-pressure coil spark. 4. Normal spark plug.	High-pressure coil is damaged	Replace
	Ignition coil is damaged	Replace
	Magneto loses magnetism	Replace
1. Poor cylinder compression. 2. Normal fuel supply system. 3. Normal ignition system.	Piston ring is worn to or even over its wear limit	Replace
	Piston ring is broken	Replace
	Piston ring is sticking	Clear up carbon fouling
	Spark plug is not installed tighten or without a gasket	Tighter with a gasket in
	Air leakage between cylinder block and cylinder head	Check cylinder gasket, and the flatness of the surface by which cylinder block contacting with cylinder head, tighten cylinder head bolts in stipulated order to stipulated torque.
	Air leakage in valves	Check valve, clearance and tightness, repair if necessary

WARNING

- When testing the spark plug, never hold the high-voltage wire of the spark plug with wet hand.
- Make sure there is no spilled fuel outside the engine and that the spark plug isn't dipped with fuel.
- To prevent fire, keep sparks far away from the spark plug mount hole.

2. By using starting motor

ITEM	CAUSE	REMEDY
Check battery connection	Incorrect connection	Correct
Check battery	No charge or under charge, corrosion	Check the breaker, charge up the battery or replace it

Engine Operation

Starting motor functions normally	Be the same as kick-starter	Conduct it in the same way of kick-starter
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Having fulfilled all the check items above, the engine still fails to work, contact your dealer for help.

II. LOW GASOLINE ENGINE POWER OUTPUT

TROUBLE	CAUSE		REMEDY
When turning throttle greater, speed in crease responds slow or speed is decreased even engine stops running	Ignition system	Incorrect ignition time	Readjust ignition advance angle
	Fuel supply system	Air in fuel line or fuel line clogged	Exhaust air or dredge fuel line
		Main oil flow hole is not adjusted properly	Readjust
		In carburetor, needle valve hole and main oil flow hole clogged	Clean and blow to get through
		Fuel cock is clogged up	Clean, replace damaged part
		Too much carbon deposit in combusting chamber	Clear away
		Too much carbon fouling in muffler and exhaust pipe	Clear away
		Air cleaner is clogged up	Clean air cleaner filter elemi
	Poor compression	Intake pipe is leaking	Repair or replace
		Piston or cylinder or piston ring is worn	Replace the worn
		Air leakage from the surface by which cylinder block contacting with cylinder head	Replace cylinder gasket
		Too big or too small valve clearance	Readjust it
		Valve tightness is poor	repair

III. GASOLINE ENGINE CANNOT RUN SMOOTHLY

TROUBLE	CAUSE	REMEDY
Engine is pinging	Piston, cylinder or piston ring is worn excessively	Replace the worn
	Piston pin and piston pin hole are worn excessively	Replace piston or piston pin
	Tie rod small head is worn excessively	Replace tie rod
	Roller bearing for crankshaft main shaft is worn	Replace roller bearing
Abnormal combustion	Engine is too hot	Shoot trouble
	Too much carbon deposit in combustion chamber	Clear away
	Improper gasoline brand or low gasoline quality	Replace with qualified gasoline
Engine cannot start	There is water in float chamber	Clean

Engine Operation

because of spark lacking	Improper spark plug electrodes clearance	Adjust
	Incorrect ignition time	Readjust
	Something wrong with induced coil, and so on	Check and replace damaged parts

IV. STOP SUDDENLY WHEN RUNNING

TROUBLE	CAUSE		REMEDY
Stop suddenly when running	Fuel supply system	Fuel is used up	Refill fuel
		Carburetor is clogged	Check fuel line and dredge
		Float is leaking	Repair
		Needle valve sticks	Dismantle float chamber and crimpate it
	Ignition system	Spark plug is struck through, or short-circuited by carbon deposit	Replace spark plug
		Side electrode of spark plug is dropped out	Replace spark plug
		High-pressure wire is dropped out	Weld on
		Ignition coil is struck through to be short-circuited	Replace ignition coil
		Parking wire is located on engine body	Find out meeting and insulate
	The other	Cylinder is pulled damage, valve is dropped out	Repair or replace damaged parts

V. GASOLINE ENGINE IS EXCESSIVELY HOT

TROUBLE	CAUSE	REMEDY
Gasoline engine is excessively hot	Improper ignition time	Adjust ignition advance angle properly
	Insufficient fuel supply	Refill engine oil
	Exhaust pipe is blocked up	Dredge exhaust pipe
	Flow guard is leaking	Repair damaged part
	Dirt or something like this fill up among air cooling fins	Clear away dirt or something like this
	Cooling fan is loosen, losing function	Reinstall well
	The rod deformation makes piston and cylinder bushing side wear	Replace tie rod

Engine Operation

	Cylinder or piston or piston ring is worn, resulting in air flow between cylinder and crankcase	Replace the worn
	Improper adjustment of engine speed produces excessive rotational speed	Readjust engine speed to proper value by speed regulator
	Crankshaft main bearing is burnt out	Replace main bearing

NOTE: the gasoline should run under certain temperature. Generally, permitting temperature at the flow guard outlet is between 80-110°C, while the temperature of the crankcase is about 60°C under the magneto. If temperatures surpass the limits, it is an indication that the gasoline engine is excessively hot.

VI. THERE EXISTS ABNORMAL NOISE WHEN ENGINE RUNNING

TROUBLE	CAUSE	REMEDY
Abnormal noise	Piston, piston ring or cylinder is worn	Replace the worn
	Tie rod or piston pin and piston pin hole is worn	Replace the worn
	Crankshaft main bearing is worn	Replace
	Piston ring is broken	Replace
There is an abnormal noise during combustion	Too much carbon deposit in combusting chamber	Clear away carbon deposit
	Too small electrode clearance of spark plug	Adjust electrode clearance properly
	Engine is flooded with fuel	Check relative parts such as carburetor
	Improper fuel brand	Replace fuel
	Engine is excessively hot	Find a cause and eliminate it
The other	Improper valve clearance	Readjust calve clearance properly
	Fly wheel is not connected with crankshaft tightly	Connect tightly

Summary of Important Safety Information for Operation

Safety During Towing

- **Read instructions.** Review towing safety instructions in your towing vehicle manual.
- **Securely attached.** Be sure the log splitter is securely attached to the towing vehicle before towing.
- **Tires.** Be sure tires are in good condition before towing the splitter.
- **Added length.** Be aware of the added length of the splitter.
- **Towing.** This machine should not be towed on any street, highway or public road.
- **Speed limit.** Never tow this log splitter over 5 mph. Faster speeds may result in loss of control.
- **Rough terrain.** Be extra cautious and drive slowly when traveling over rough terrain.
- **Under the influence.** Never tow this splitter while under the influence of alcohol, drugs, or medication.
- **Unattended.** Turn off the towing vehicle before leaving the splitter unattended.
- **Disconnect before operate.** Do not use the log splitter while it is connected to the towing vehicle.

Safety – Before Use Read/instruct

- **Read manual.** Do not allow anyone to operate the log splitter who has not read the Owner's Manual or has not been instructed on the safe use of the splitter.
- **Review safety rules.** Before starting this log splitter, review the instructions for safe operation. Failure to follow these instructions may result in serious injury to the operator or bystanders.
- **Know how to stop.** Be thoroughly familiar with all controls and with the proper use of the equipment. Know how to stop the log splitter and relieve system pressure quickly if needed.

Personal protective equipment

- **Eye protection.** Always wear safety glasses or goggles when operating the machine. Pieces of log may fly out and serious eye injury can occur.
- **Boots.** Falling logs can crush feet. Always wear safety shoes or heavy boots when operating or helping to load logs.
- **Loose / dangling.** Loose or dangling apparel can become entangled in moving parts. Never wear jewelry or loose-fitting clothing.
- **Gloves.** Wear snug fitting gloves without draw strings or loose cuffs.
- **Hearing protection.** The use of ear plugs or other hearing protection device is recommended.

Safety During Inspection/Maintenance

Always inspect your log splitter before each use, and repair as needed, to keep it in safe working condition:

- **Engine off.** Always make sure the engine is off before cleaning, repairing or adjusting the splitter, except as recommended by the manufacturer.
- **Engine debris.** Debris on a hot engine can be a fire hazard. With the engine off, clean debris and chaff from engine cylinder head, cylinder head fins, blower housing rotating screen, and muffler areas. Avoid contact with hot muffler.
- **Other debris.** Debris on moving parts can cause excess wear. With the splitter engine off, clear debris from moving parts.
- **Fuel tank / lines.** Before each use, check fuel tank and fuel lines for leaks. Any fuel leak is a fire hazard. Fix any fuel leaks before starting engine.
- **Mechanical parts.** Check to be sure all nuts and bolts are tight to make sure the log splitter is in safe working condition.
- **Hydraulic system.** Check the hydraulic system (hoses, tubing, clamps/fittings, pump, and cylinder) carefully before each use. Do not operate the log splitter with frayed, kinked, cracked or damaged hydraulic hoses, fittings, or tubing, or if oily residue is observed on any of the components. High fluid pressures and temperatures are developed in the log splitter. Hydraulic fluid escaping through a pin hole sized opening can burn or puncture skin, resulting in wounds that could cause blood poisoning, infection, disability, gangrene, amputation, or death.

Summary of Important Safety Information for Operation

Therefore, the following instructions should be heeded at all times when inspecting or servicing the hydraulic components of the log splitter:

- Do not remove the hydraulic oil fill cap when the engine is running. Hot oil can escape causing severe burns. Allow log splitter to cool completely before removing hydraulic oil fill cap.
- Do not adjust the pressure setting of the pump or valve.
- Do not check for leaks with your hand. Leaks can be located by holding a piece of cardboard or wood (at least two feet long) with your hand at one end and passing the other end over the suspected area (wear eye protection). Look for discoloration of the cardboard or wood.
- Stop the engine, disconnect the spark plug, and move all control valve handles back and forth to relieve pressure before changing or adjusting hydraulic system components such as hoses, tubing, fittings or other components.
- If injured by escaping fluid, no matter how small the wound is, see a doctor at once. A typical injection injury may be a small puncture wound that does not look serious. However, severe infection or reaction can result if proper medical treatment is not administered immediately by a doctor who is familiar with injection injuries.
- **Spark arrestor muffler.** If the engine is equipped with a spark arrestor muffler, clean and inspect it regularly (follow manufacturer's service instructions). Replace if damaged.
- **Tires.** Be sure tires are in good condition before towing the splitter.

Safety During Fueling

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel. Use extreme care when handling gasoline:

- **Fuel outdoors.** Fill fuel tank outdoors – never indoors. Gasoline vapors can ignite if they collect inside an enclosure. Explosion can result.
- **Use approved container.** Never pump fuel directly into engine at gas station. Static charge can build and ignite fuel. Use an UL approved fuel container to transfer gas to the engine.
- **Running / hot engine.** A running engine is hot enough to ignite fuel. Never add fuel or remove gas cap if engine is running or still hot. Stop the engine and allow to cool, at least two minutes before adding fuel.
- **Heat / flames / sparks.** Stay away from sources of heat, flame, or sparks while adding fuel.
- **Don't overfill.** DO NOT overfill the gas tank. Allow at least 1/2" of empty space below the fill neck to allow for fuel expansion.
- **Replace cap.** Replace gas cap securely before starting engine.
- **Spills.** Clean up fuel spills immediately. Move log splitter away from spilled fuel on the ground. Wipe fuel off engine and wait 5 minutes for excess fuel to evaporate before starting engine. Gas soaked rags should be disposed of properly.
- **On skin / clothes.** If gasoline is spilled on your skin or clothes, change clothes and wash skin immediately.
- **Gasoline storage.** Store gasoline in a cool, dry place in an UL approved, tightly sealed container.

Safety in Work Site Selection / Set-up

- **Spark arrestor.** If your splitter will be used near any unimproved forest, brush, or grassy covered land, then engine should be equipped with a spark arrestor. See the "Specifications" section of this manual to determine if your splitter already has a spark arrestor. Make sure you comply with applicable local, state and federal codes.
- **Hot exhaust.** Hot exhaust fumes from engine can cause fire. Position muffler at least 7' from combustible objects during operation.
- **Fire extinguisher.** Have a Class B fire extinguisher available as a precautionary measure when operating the log splitter in dry areas.
- **Level, dry surface.** To prevent accidental falls and equipment tip over, make sure the splitter is situated on a dry, level surface with good footing. Stay clear of areas with mud, ice, tall grass, weeds, or brush.
- **Block wheels.** Always block the wheels to prevent unintended movement of the log splitter.

Summary of Important Safety Information for Operation

- **Carbon monoxide.** The running engine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it. ONLY run log splitter OUTDOORS and away from air intakes. NEVER run log splitter inside homes, garages, sheds, or other semi-enclosed spaces. These spaces can trap poisonous gases, EVEN if you run a fan or open windows. If you start to feel sick, dizzy, or weak while using the log splitter, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.

Safety – During Use General Safety During Use

 **WARNING:** Before starting this log splitter, review the following rules for safe operation. Failure to follow these rules may result in serious injury to the operator or bystanders.

- **Safety equipment / controls.** Always operate the log splitter with all safety equipment in place and in good working order, and all controls properly adjusted for safe operation.
- **Operating speed.** Always operate the log splitter at the manufacturer's recommended speed. The maximum speed of the engine, pump and push plate are preset within safe limits.
- **Know how to stop.** Be thoroughly familiar with all controls and with the proper use of the equipment. Know how to stop the log splitter and relieve system pressures quickly if needed.
- **Daylight only.** Only use the log splitter in daylight so you can see what you are doing.
- **Smoking / sparks.** Never smoke while operating the log splitter, and never operate near sources of sparks or flames.
- **Hot muffler.** If you are starting a warm engine, stay clear of muffler. It may still be hot enough to burn you.
- **Unattended.** Never leave the machine unattended while the engine is running.
- **Under the influence.** Never operate, or let anyone else operate, the log splitter while under the influence of alcohol, drugs, or medication.
- **Adjusting repairing.** Always make sure the engine is off before cleaning, repairing or adjusting the splitter, except as recommended by the manufacturer. In addition, disconnect the spark plug and move all control handles back and forth to relieve system pressure *before changing or adjusting hydraulic system components* such as hoses, tubing, fittings or other components.
- **Carbon monoxide.** The running engine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it. If you start to feel sick, dizzy, or weak while using the log splitter, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.
- **Other exhaust dangers.** Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Avoid inhalation of exhaust.

Safety in Loading, Operating, and Unloading

- **Square log ends.** Logs that are not cut square can slide out while splitting and become a safety hazard or cause excessive force to log splitter components. Use a chainsaw to cut logs square on each end before attempting to split them.
- **Single log.** Never attempt to split more than one log at a time. Pieces of log can unexpectedly be thrown from the machine causing serious injury.
- **Split along grain.** Do not use the log splitter to split logs across the grain. Doing so will damage the log splitter and could also cause pieces of log to be thrown, injuring the operator or bystanders.
- **Keep hands clear.** ALWAYS keep hands and feet away from the push plate, wedge, and partially split logs while loading, operating and unloading the log splitter.
- **Operator position.** ALWAYS operate the log splitter from the manufacturer's indicated OPERATOR ZONE. Other positions are unsafe because they can increase the risk of injury from crushing, cutting, flying objects, or burns.
- **Straddling / reaching across.** Never straddle, reach across, or step over the beam while the splitter engine is running. You could trip, actuate the controls, and get seriously injured.
- **Second person.** Many accidents occur when there is more than one person involved in loading and operating the log splitter. Only one person should operate the controls. *If a second person is assisting in loading logs, the operator must NEVER actuate the Split Control Lever until the assistant and all bystanders are at least 10 feet away. NEVER allow an assistant to hold the log in place while the operator actuates the Split Control Lever.*

Summary of Important Safety Information for Operation

- **Loading/Unloading**
 - **Unsplit log pile.** Do not pile logs to be split in a place that will make you reach across the log splitter in order to load them.
 - **Hold bark side.** Hold the bark side of logs when loading or positioning, never the ends. Never place your hands or any part of your body between a log and any part of the log splitter.
 - **Push Plate moving.** NEVER load or unload logs while the push plate is moving.
 - **Cracks.** Cracks in logs can close quickly and pinch fingers. Keep fingers away from any cracks that open in partially split logs.
 - **Split log pile.** Move each log away from log splitter after it is split. Split logs left near the log splitter are a trip hazard.
 - **Remove hands.** Remove both hands from log before activating Split Control Lever.
 - **Hand activate.** Use only your hand to operate the Split Control Lever. Never use any other body part, or a rope, cable, or other remote device to actuate the control.
 - **Returning Push Plate.** Once the control valve is actuated in the return direction, the push plate is designed to keep returning by itself completely and then stop automatically. Stay clear while the push plate is returning. It is still powerful enough on the return stroke to cause serious injury.
 - **Log stuck on wedge.** A log can become stuck to the wedge if the wedge becomes embedded in the log and the log doesn't split and separate. This can happen if the log is too stringy or tough to split completely. If this happens, follow the directions below to manually remove the log:
IMPORTANT: NEVER attempt to remove a stuck log by using the hydraulic force of the splitter, or by modifying or adding attachments to splitter. Personal injury could result from log or metal pieces flying out at high speed toward the operator or bystanders, or the splitter could become damaged.
 1. Retract push plate fully.
 2. Turn engine OFF.
 3. Remove stuck log from the wedge **manually** with a pry bar or a sledgehammer. Be extremely careful, as log pieces may fly off as they separate from the wedge. Wear safety goggles and make sure bystanders are clear.
 4. Do not attempt to resplit a stuck log once it has been removed from the wedge.
- **Refueling.** Never refuel the engine until it has cooled at least two minutes.

Safety – After use

- **Remove engine debris.** Debris on a hot engine can be a fire hazard. With the engine off, clean debris and chaff from engine cylinder head, cylinder head fins, blower housing rotating screen, and muffler areas. Avoid contact with hot muffler.
- **Let engine cool before storing.** Let engine cool for at least five minutes before storing. A hot engine can be a fire hazard.
- **Storage location.** Store the log splitter in a location away from sources of heat, open flames, sparks or pilot lights – such as water heaters, space heaters, furnaces, clothes dryers, or other gas appliances. Even if the log splitter's gas tank is empty, residual gasoline vapors could ignite.
- **Gasoline storage.** Store extra gasoline in a cool, dry place in an UL approved, tightly sealed container. Gasoline vapors can ignite if they collect inside an enclosure.
- **Periodic maintenance.** Perform periodic maintenance as directed in this manual to keep the log splitter in safe working condition.

Limited Warranty

Dear Valued Customer:

The Wel-Bilt Product you just purchased is built with the finest material and craftsmanship. Use this product properly and enjoy the benefits from its high performance. By purchasing a Wel-Bilt product, you show a desire for quality and durability. Like all mechanical equipment this unit requires a due amount of care. Treat this unit like the high quality piece of machinery it is. Neglect and improper handling may impair its performance. Please thoroughly read the instructions and understand the operation before using your product.

Limited Warranty

Wel-Bilt shall warranty any piece of equipment manufactured, or parts of equipment manufactured, to be free from defects in material or workmanship for a period of 1 year for noncommercial/nonrental use and a period of 90 days for commercial/rental use from the date of purchase by user.

Wel-Bilt shall warranty any wear item, including, but not limited to, valves, seals, pump diaphragms, hoses, and filter elements to be free from defects in material or workmanship for a period of 90 days from the date of purchase by user. This warranty applies to the original purchaser of the equipment and is non-transferable. Verification of purchase is the responsibility of the buyer. Parts will be replaced or repaired at no charge, except when the equipment has failed due to lack of proper maintenance. Any misuse, abuse, alteration or improper installation or operations will void warranty. Determining whether a part is to be replaced or repaired is the sole decision of Wel-Bilt.

NOTE: Some services performed by parties other than Wel-Bilt may void warranty.

This warranty covers parts only. It will not provide for replacement of complete products due to defective parts. Components not manufactured by Wel-Bilt are guaranteed by their manufacturer and can be serviced at factory-authorized locations near you. Any costs incurred due to replacement or repair of items outside of a Wel-Bilt approved facility is the responsibility of the buyer and not covered under warranty. Wel-Bilt can supply you with the service center location in your area.

This warranty specifically excludes the following; failure of parts due to damage caused by accident, fire, flood, windstorm, acts of God, applications not approved by Wel-Bilt in writing, corrosion caused by chemicals, use of replacement parts which do not conform to manufacturer's specifications, and damage caused by vandalism. Additional exclusions: loss of running time, inconvenience, loss of income, or loss of use, including any implied warranty of merchantability of fitness for a specific use.

Warranty does not cover items subject to normal wear such as tires, receptacles or any part subject to direct physical contact by the public. This warranty does not cover any personal injury or damage to surrounding property caused by failure of any part.

This warranty is in lieu of any other warranty expressed or implied and Wel-Bilt assumes no other responsibility or liability outside that expressed within this warranty.

Please fill in the following information and have it on hand when you call in on a warranty claim.

Customer Number: _____

Date of Purchase: _____

Wel-Bilt Serial Number: _____

Item Number: _____

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